ONTARIO
DEPARTMENT OF MINES

Mineral Resources Circular No. 9

Uranium and Thorium Deposits of Northern Ontario

By

JAMES A. ROBERTSON

Compliments of
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MINISTRY OF NORTHERN DEVELOPMENT
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Uranium and Thorium Deposits of Northern Ontario

By

James A. Robertson

ABSTRACT

This mineral inventory briefly describes the deposits of uranium and (or) thorium in northern Ontario, which for purposes of this circular is defined as that part of Ontario lying north and west of the Grenville Front. The majority of the deposits described are fossil placers lying at or near the base of the Huronian. These include the producing and past producing mines of the Elliot Lake camp and the areas under development at Agnew Lake and Capreol. Also included are the pitchblende veins associated with the Keweenawan dikes of the Theano Point - Montreal River area. Miscellaneous pegmatite, vein deposits, or disseminations in diabasic, granitic and carbonatitic complexes scattered throughout northern Ontario make up the rest of the occurrences.

Work was carried out principally during the uranium rush of 1953-1957. Production of uranium in the Elliot Lake camp started in 1955 and has continued on a reduced scale to the present day. There is also minor production of thorium and yttrium.

Since 1965 exploration for uranium has resumed and this was accentuated in 1967 following a marked increase in the number of planned nuclear power stations, and the allocation of new contracts for the production of uranium.

Production of uranium from the Elliot Lake camp to the end of 1966 was 128,160,096 lbs. U_3O_8 valued at $1,203,840,848. This was derived from 56,077,179 tons of ore grading approximately 0.1 percent U_3O_8.

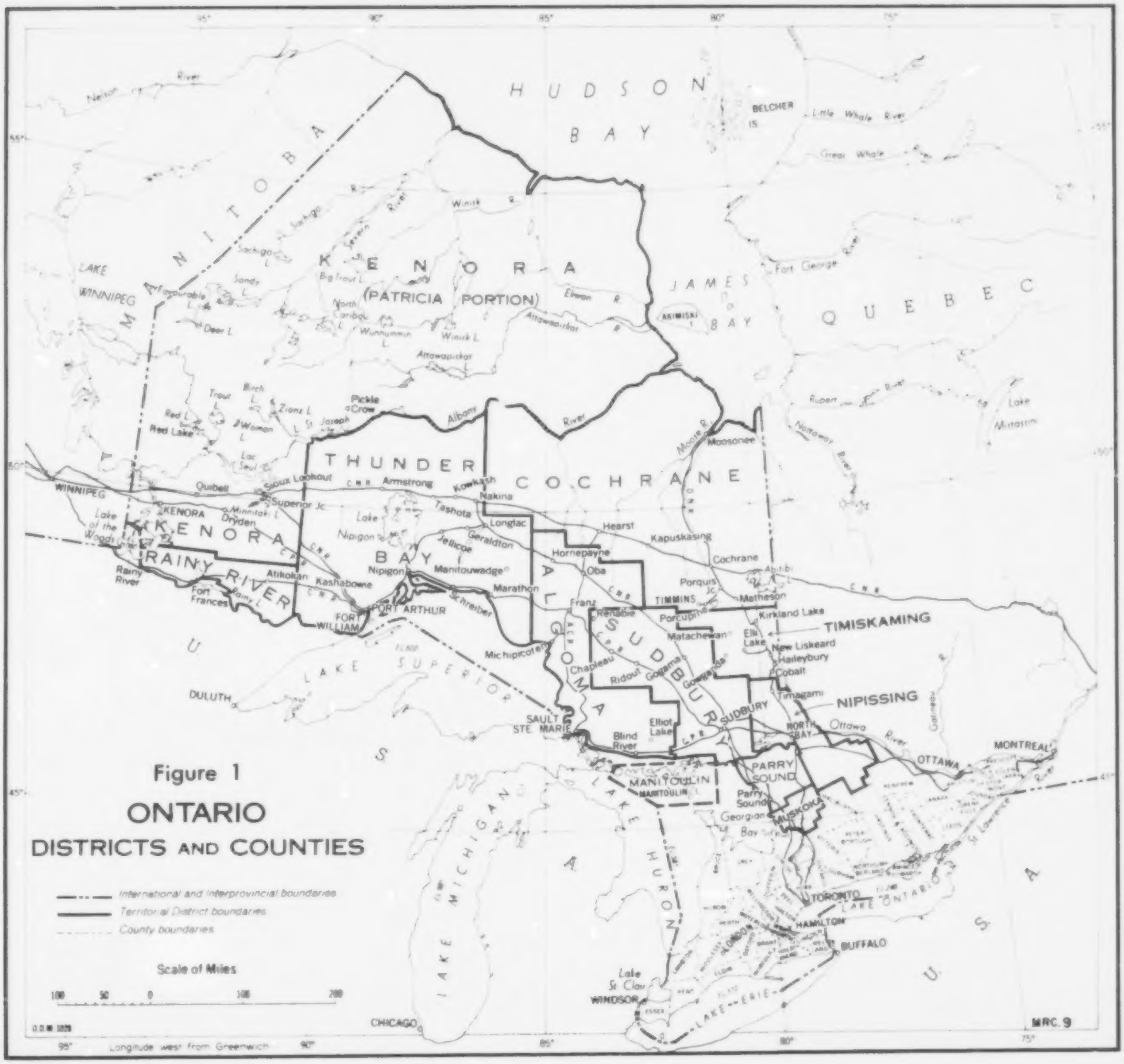
HUDSON BAY
JAMES BAY
MANITOBA
QUEBEC
KENORA (PATRICIA PORTION)
THUNDER BAY
COCHRANE
KENORA
RAINY RIVER
ALGOMA
SUDBURY
TIMISKAMING
NIPISSING
MANITOULIN
PARRY SOUND
MUSKOKA
U. S. A.
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
LAKE ERIE
LAKE WINNIPEG
WINNIPEG
DULUTH
CHICAGO
WINDSOR
TORONTO
HAMILTON
BUFFALO
OTTAWA
MONTREAL
SAULT STE. MARIE
FORT WILLIAM
PORT ARTHUR
SUDBURY
NORTH BAY
TIMMINS
Moosonee
Hearst
Kapuskasing
Cochrane
Kirkland Lake
New Liskeard
Haileybury
Cobalt
Timagami
Geraldton
Longlac
Nakina
Armstrong
Sioux Lookout
Dryden
Red Lake
Atikokan
Fort Frances
Kashabowie
Nipigon
Schreiber
Marathon
Manitouwadge
Hornepayne
Chapleau
Michipicoten
Blind River
Elliot Lake
Parry Sound
Georgian Bay
Pickle Crow
Big Trout L.
Sandy L.
Deer L.
Lake of the Woods
Albany River
Attawapiskat
Winisk R.
Severn River
Moose R.
Ottawa River
Rupert River
Belcher Is.
Little Whale River
Great Whale River
Fort George River
Lake Mistassini
International and interprovincial boundaries
Territorial District boundaries
County boundaries
Scale of Miles
100 50 0 100 200
Longitude west from Greenwich
95° 90° 85° 80° 75°
55° 50° 45°
MRC. 9
O.D.M. 1026

Figure 1

ONTARIO

DISTRICTS AND COUNTIES

URANIUM AND THORIUM DEPOSITS OF NORTHERN ONTARIO

By

James A. Robertson[1]

INTRODUCTION

The principal uranium and thorium deposits of Ontario occur in the Blind River and Bancroft areas. The former are fossil placers at or near the Huronian - Archean boundary and the latter are pegmatitic granite dikes, pegmatites, metasomatic replacement deposits and calcite-fluorite-apatite veins in rocks of the Grenville Province. Because of the geological implications, for the purposes of this inventory the boundary between northern and southern Ontario has been taken as the Grenville Front rather than a district boundary.

Uranium mineralization with or without thorium has been found throughout the Huronian belt from Sault Ste. Marie eastwards to Sudbury and into the Cobalt area. The only production has been from the Elliot Lake - Blind River area. Reserves have been established in the Agnew Lake area, where Agnew Lake Mines Ltd. is preparing a mine for production.

This circular also includes the pitchblende occurrences of Theano Point - Montreal River area where pitchblende veinlets are found in or near the contact zones of Keweenawan diabase dikes. There has been no production from the Theano Point area but it is of historical interest as the first recorded occurrence of pitchblende in Canada. This circular also includes various pegmatitic and vein deposits scattered throughout northern Ontario. Uranium and thorium are potential by-products from some carbonatite complexes.

Table I lists the production statistics for the Elliot Lake camp.

Acknowledgments

The writer is greatly indebted to the Resident Geologists

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[1] Geologist, Ontario Department of Mines, Toronto. Manuscript received by the Director, Geological Branch, Mar. 18, 1968.

Table 1

Uranium mines, Elliot Lake area, production in dollars

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	Total
Can-Met	-	-	240,765	12,757,325	17,852,702	6,740,000	-	-	-	-	-	-	37,590,792
Denison (Consol. Denison[a])	-	-	13,122,000	42,042,514	49,552,089	32,047,137	39,732,485	39,791,162	36,344,601	27,031,841	16,319,154	14,478,154	310,461,742
Northspan[b]	-	-	1,674,452	45,270,542	55,966,513	-	-	-	-	-	-	-	102,911,507
Preston (Stanleigh[c])	-	-	-	10,205,214	20,970,362	21,687,400	-	-	-	-	-	-	52,862,976
Rio Algom	-	-	-	-	-	-	73,928,000	46,096,000	48,859,500	25,903,000	-	-	588,073,988
Lacnor[b]	-	-	-	-	-	14,015,380	-	-	-	-	-	-	*
Milliken[d]	-	-	-	11,890,000	21,625,870	23,690,009	*	*	*	*	-	-	*
Nordic[c]	-	-	22,590,000	26,875,000	25,544,554	23,141,706	*	*	*	*	30,102,000	27,520,769	*
Panel[b]	-	-	-	-	-	25,091,789	*	-	-	-	-	-	*
Pronto[e]	487,054	7,281,100	11,021,741	12,219,639	13,639,541	3,352,774	-	-	-	-	-	-	*
Quirke	-	1,615,100	22,840,000	22,900,000	23,049,120	22,794,342	*	-	-	-	-	-	*
Stanrock	-	-	-	6,997,505	17,994,760	22,709,237	22,616,136	20,704,231	10,912,162	8,437,213	813,738	754,861	111,939,843

Grand total to end 1966 56,077,179 tons milled; 128,160,096 pounds U_3O_8; $1,203,840,848

a. Consolidated Denison Mines Ltd. 1957-1959.
b. Northspan Uranium Mines Ltd. includes dollar value for Lacnor, Panel, and South American mines 1957-1959.
c. Stanleigh Uranium Mining Corp. Ltd. 1958-1959.
d. Milliken Lake Uranium Mines Ltd. 1958-1959.
e. Pronto Uranium Mines Ltd. 1955-1959.
* Dollar value included in Rio Algom total.

in northern Ontario for much of the data summarized in the following pages. Many company officials, prospectors, and individuals gave the writer access to records and their assistance is gratefully acknowledged.

Explanation of this Circular

Uranium occurrences are listed alphabetically under district, township and company names. There is a general index at the back of this circular. It should be used in conjunction with the latest edition of the Mineral Map of Ontario (ODM, Map 2024 or 2148) which shows the districts, townships, mining districts, and the location of many deposits described here.

Low-grade uranium deposits that are reported to contain less than 0.02 percent uranium oxide are listed in tables under Miscellaneous Occurrences. Deposits on which there is very little information are also assigned to these tables.

Only the most up-to-date references are quoted. The Canadian Mines Handbook contains information on most of the companies listed in the circular.

Data for the circular was collected in 1967. Information on property developments does not extend beyond the end of that year.

Abbreviations used throughout this circular are as follows:

ACR - The Algoma Central and Hudson Bay Railway Company
AECL - Atomic Energy of Canada Limited
Bg. - Background radiation count
Chem. - Chemical analysis, standard method
CIMM - Canadian Institute of Mining and Metallurgy
CNR - Canadian National Railway
CPR - Canadian Pacific Railway
EM - Electromagnetic survey
GSC - Geological Survey of Canada
K - Kenora (files), Resident Geologist's Office
NYSE - New York Stock Exchange
TSE - Toronto Stock Exchange
ODM - Ontario Department of Mines (files at Room 1323, Whitney Block, Parliament Buildings, Toronto)

P. - Preliminary map (of ODM)
R - U_3O_8 equivalent, determined by radiometric test
Ra. - Radioactivity
RE - Radiometric equivalent
S - Sudbury (files) Resident Geologist's Office
SSM - Sault Ste. Marie (files) Resident Geologist's Office

DESCRIPTION OF DEPOSITS

DISTRICT OF ALGOMA

ABERDEEN TOWNSHIP

Rio Tinto Canadian Exploration Ltd.

Location: Rio Tinto Canadian Exploration Ltd. option: Lot 4, concession V; N½, lot 3, concession IV, Aberdeen township. D. Peterson: S½, lot 3, concession IV, Aberdeen township.

Development: 1965, 4 DDH totalling 1364.6 ft. on Rio Tinto ground. 2 DDH totalling 650.0 ft. on Peterson ground.

Geology: 25.3 feet of Mississagi quartzite and pyritic conglomerate lies between lava flows.

Dimensions and Grade: Rio Tinto Canadian Exploration Ltd.: 0.026-0.054 lb. U_3O_8 and 0.028-0.050 lb. Th over widths of 0.8-5.5 feet.
Peterson: Assays on one hole only,
0.085 % U_3O_8, 0.008 % Th/1.7 ft.
0.110 % U_3O_8, 0.012 % Th/1.5 ft.

References: ODM, Files, SSM 751,
ODM, Map 2108,
GSC, Map 32-1962, Bruce Mines.

DAY TOWNSHIP

Sowerby Occurrence

Location: Between village of Sowerby and Wakwekobi Lake, Day township.

Radioactive Minerals Present: Pitchblende (uraninite), uranophane.

Development: Copper-nickel-cobalt showing. Pitting and drilling, 12 holes totalling 3,640 feet. (1956-57)

Geology: Spotty mineralization in Nipissing diabase and Gowganda Formation adjacent to contact or as brecciated inclusions. Mineralization Cu - Ni - Co - U.

Dimensions and Grade: Best grab sample: 2.18% U_3O_8. Best core sample: 0.074% U_3O_8 over 5 feet.

References: ODM, Files, SSM 53, Basswood Mines Ltd.
SSM 724, Prosco No. 2 report,
ODM, Map 2108.

DUNCAN TOWNSHIP

Maud Lake Occurrence

Location: West central Duncan township, east shore of Maud Lake.

Geology: There are several showings of uraniferous quartz-pebble conglomerate along the east shore of Maud Lake. The conglomerate unit consists of conglomerate, arkose and greywacke. The individual beds in the unit are no thicker than two feet and total thickness is fifteen feet.

References: ODM, Map 2108,
GSC, Map 26-1961,
Wahl, W.G.: Personal communication.

JARVIS TOWNSHIP

Reserve Lake Occurrence

Location: Reserve Lake, Jarvis township.

Development: Surface samples.

Geology: Shear zone in granite.

Dimensions and Grade: Two samples 0.034%R and 1.36%R reported by M.C. Gardiner of Haileybury, Ontario.

Reference: Lang, 1952, p. 135.

KINCAID TOWNSHIP

Hathaway Metal Mines Ltd.

Location: Cozens Cove, Lake Superior, Kincaid township.

Radioactive Mineral Present: Pitchblende.

Development: Geological and geophysical mapping, sampling. 750 lb. bulk sample sent to Mines Branch, Ottawa.

Years of Activity: 1949-1951, Danaray Uranium Mines Ltd. 1964, Restaked as base-metal prospect by Hathaway Metal Mines Ltd.

Geology: Mineralization occurs in fractures in NW-trending Keweenawan diabase dikes cutting Archean granitic rocks.

Dimensions and Grade: The occurrence was stripped over width of 2-11 feet and length of 70 feet. Ra does not persist over entire width. Selected samples (4) ranged from 1.08-1.90% U_3O_8 (chemical).

References: ODM. Map 2108,
ODM, Files: 63A 73)
SSM 290) Danaray Uranium Mines Ltd.
SSM 664 Hathaway Metal Mines Ltd.

KIRKWOOD TOWNSHIP

Abconore Uranium Mines Ltd.

Location: West side of Chapleau Road, 8½ miles north of Thessalon, Kirkwood township.

Development: Geological mapping, scintillometer survey, one drill hole.

Geology: Nipissing diabase lies east of the highway and Gowganda greywacke west of the highway. At the north edge of the greywacke outcrop a quartz-chalcopyrite vein strikes E - W. Ra was recorded in greywacke in the westernmost trenches.

Dimensions and Grade: Greywacke 2 - 4 Bg. Grab samples 0.042%, 0.148% U_3O_8 (chemical).

References: ODM, Files: 63.944)
SSM 67) Abconore Uranium Mines Ltd.
SSM 68)

LEFROY TOWNSHIP

Webb Prospect

Location: Webb farm, a few miles NE of Bruce Mines, Lefroy township.

Year of Activity: 1955.

Geology: Sheared quartzite (either Gowganda Formation or basal Lorrain) lies adjacent to the Murray Fault.

Dimensions and Grade: The shear zone is exposed over a length of 5-10 feet. Assay of average outcrop material: 0.02% U_3O_8 RE.

References: File, SSM 2; ODM, Map 2108.

LONG TOWNSHIP

Caswell Showing (Location X)

Location: South part of lots 9 and 10, concession II, Long township.

Development: Old iron showing; trenching, sampling, and drilling.

Years of Activity: Radioactivity discovered during highway construction 1949.

Geology: Pyrite-specularite-quartz stockwork cuts interbedded quartzite and shale of Gowganda Formation adjacent to diabase dike.

Dimensions and Grade: Six samples assayed from 0.025-0.15% U_3O_8.

References: Lang et al 1962, p. 128,
Robertson, J.A.: ODM open file report No. 5010.

Remarks: Shown as iron prospect on ODM Map 2108.

Rio Algom Mines Ltd. (Pronto Division): Pronto Mine

Location: East end of Lake Lauzon.

Radioactive Minerals Present: Brannerite, uraninite, monazite, thucholite, uranophane.

Development: Underground workings. The mine is a past-producer of uranium.

Years of Activity: 1953-1960. Mine closed 1960, mill converted to production of copper from Pater mine.

Production: See Table 1.

Geology: Pyritic radioactive quartz-pebble conglomerate at base of the Lower Mississagi Formation lies on Archean granitic basement. The ore-bed is cut by diabase dikes and is affected locally by albite, chlorite, and carbonate alterations. The area is structurally just north of the Murray Fault and the ore-bed is cut off to the south by a fault.

Dimensions and Grade: Ore zone is 3,500 feet long, with an average thickness of 7½ feet. It was traced to a depth of 1,000 feet where it was terminated by a thrust fault. From 1956 to 1959 calculated millheads ranged from 2.15 to 2.44 lbs. U_3O_8 per ton.

Reserves: 300,000 tons of ore-grade material (W. James of W.F. James, B.S.W. Buffam and M.A. Cooper, consultants, in company prospectus, March 16, 1966).

References: Robertson, J.A., 1957: ODM open file report No. 5010, Geology of Spragge area,p. 122-147,
Griffith, J.W., 1967, p. 162-168,
ODM Map 2108.

Remarks: Pronto deposit was the discovery locality for the Blind River - Elliot Lake mining camp. The mill was the first in operation.

Rio Algom Mines Ltd. (Pronto Division), Spragge Creek Occurrence

Location: Spragge Creek east and west of Long - Spragge township boundary.

Development: Airborne geophysics, ground mapping, drilling.

Years of Activity: 1953-1959.

Geology: Lower Mississagi arkose and conglomerate lies on Archean granitic basement and is overlain transgressively by a Nipissing diabase sill intruded along a thrust fault.

Dimensions and Grade: Not given. Best grab sample 1959: 2.2 lb. U_3O_8 from creek junction just east of Long - Spragge boundary.

Reference: Robertson, J.A., 1957: ODM. open file report No. 5010.

MACK TOWNSHIP

Black Lake Occurrence

Location: Concessions I, II, III between Emerald Lake and Black Lake, Mack township.

Development: 1953, J.E. Gimby: test pits, 5 DDH totalling 243 feet.
1954, Harrico Mining and Development: Mapping, Ra survey.
1955, Talvey Metal Mines Ltd.: Mapping, Ra survey.

Geology: Sheared Middle Mississagi argillite is underlain by Middle Mississagi conglomerate and is overlain by Upper Mississagi quartzite. The beds have shallow W-SW dip.

Dimensions and Grade: Ra approx. 4 x Bg. has been recorded in sheared argillite. The best grab sample contained 0.24% U_3O_8 per ton.

References: ODM Files: 63A.183, Harrico,
63A.253, Talvey.
Duplicate files in SSM resident geologist's office, SSM.
Robertson 1964, ODM, G.R. 20, p. 62, 65, 77, ODM, Map 2028.

MONTGOMERY TOWNSHIP

Rio Tinto Canadian Exploration Ltd., Demorest Group

Location: Copp Lake - Demorest Lake, Montgomery township.

Development: Surface mapping, one drill hole 3,946 feet.

Years of Activity: 1966-1967: Rio Tinto Canadian Exploration.

Geology: Huronian - Archean unconformity lies at 3,908.3 feet below the surface.

Dinensions and Grade: Radioactive intersections:

Footage	Width	Assays	
3,516 - 3,517	1.0	0.11 % U_3O_8	0.22 % Th.
3,562.0 - 3,563.8	1.8	0.07 % U_3O_8	0.14 % Th.

Reference: File SSM 1060, (Rio Tinto Canadian Exploration Ltd.)

STRIKER TOWNSHIP

Cyr Property

Location: NE¼, lot 9, concession I, Striker township.

Development: Examined in conjunction with Cana property adjoining the south. Cana property drilled by Pronto Uranium Mines Ltd. (1959)

Geology: Patches of Lower Mississagi arkose and conglomerate rest on Archean granite and dip 35°S. Drilling on Cana property failed to locate down-dip continuation due to faults.

Dimensions and Grade: Maximum thickness of conglomerate is 2 feet. Grab sample - 0.4 lb. U_3O_8/ton.

Reference: Files: SSM 179 and SSM 185 on Cana Property.

TARBUTT TOWNSHIP

Tarbutt Mines Ltd.

Location: Desbarats Lake, lot 1, concession III, Tarbutt township.

Radioactive Mineral Present: Pitchblende with calcite in subsidiary fissures.

Development: Adit totalling 105 feet. On two veins striking N70°W, dipping 87°N, 1½ feet apart.

Year of Activity: 1956, (Technical Mine Consultants).

Geology: Nipissing diabase intrudes Gowganda Formation.

Dimensions and Grade: Radioactive veins were encountered in cross-cuts. These fractures carry calcite and pitchblende.

References: Lang et al 1962, p. 279,
ODM Map 2108,
Files SSM 5 (63A.302).

WHITMAN TOWNSHIP

Crestland Mines Ltd.

Location: Whitman township, northeast of Sault Ste. Marie.

Development: 1948: trenching by Consolidated Northland Mines Ltd.

Geology: Shown on ODM Map 2108, Sault Ste. Marie - Elliot Lake Sheet as underlain by Archean granitic rocks.

Dimensions and Grade: A carbonatized rusty shear zone was traced for 350 feet. A series of trenches up to 18 feet deep was dug. Assays ranged from 0.046% to 0.05% U_3O_8 (Chem.).

Reference: Northern Miner, November 17, 1966.

TOWNSHIP Q

Inspiration Mining and Development Ltd.

Location: East end of Rawhide Lake - Rosemarie Lake.

Radioactive Minerals Present: For Rawhide - Mount Lake area monazite is the dominant Ra mineral. Brannerite and uraninite may be also present.

Development: Mapping, 6 drill holes (1953).

Geology: Lorrain Formation comprises interbedded quartzite and conglomerate near overlap onto Archean basement. The conglomerates are thin-bedded, hematitic and radioactivity 1½ - 3 Bg. rarely up to 5 Bg.

Dimensions and Grade: Best assay is 0.022 (RE) over 3.5 feet other assays 0.006-0.015 over 2-6 feet.

References: Files SSM 534.

TOWNSHIP U

Mattaini Occurrence, Rawhide Lake

Location: South shore, central Rawhide Lake, Township U.

Radioactive Minerals Present: Uraninite.

Development: 1954: Mattaini; airborne scintillometer survey. 1955: Belfast Mines Ltd.; 8 pits and 5 drill holes on claim S26778 (1 drill hole on claim S26762).

Geology: Diabase sill intrudes Lorrain Formation comprising interbedded quartzites and hematitic radioactive conglomerates. At the main showing radioactivity is associated with granophyric phases of intrusive. Chalcopyrite and specularite are also present.

Dimensions and Grade: Ra in diabase 2-5 Bg. up to 10 Bg. Typical grade 0.02-0.05% with better sections up to 0.24% U_3O_8.

References: ODM Map 2108,
Files SSM 216 and 63.477 (Mattaini),
SSM 202 (Belfast Mines Ltd.).

TOWNSHIP 1A

Mount Lake Area

Location: Township 1A near Mount Lake, Tenfish Lake, and Cobre Lake.

Radioactive Minerals Present: Monazite is the dominant Ra mineral. Brannerite and uraninite may be present.

Development: Geological, geophysical surveys, trenching, drilling (1953-1955).

Geology: Lorrain Formation consists of interbedded quartzite and conglomerate near overlap onto Archean basement. The conglomerate is thin-bedded and hematitic, with radioactivity typically 2-3 Bg.

Dimensions and Grade: Individual conglomerate beds 2-6 feet thick. U_3O_8 analyses range from 0.005 to 0.03%, ThO_2 0.32%.

References:

File No.	Location	Company
SSM 205	Ten Fish Lake	Caneonti Mines Ltd.
SSM 207	N of Cobre Lake	Maralgo Mines Ltd.
SSM 208	N shore Mount Lake	Robert E. Lawrence
SSM 209		Gocanium Mines Ltd.
SSM 1019	Parksite 17 Mayfield Lake	Goderstrom - Hammerstrom
SSM 1018	Parksite 16 Mount Lake	W.J. Workman

TOWNSHIP 1B

Iron Lake Area

Location: South half, Township 1B, vicinity of Iron Lake.

Radioactive Minerals Present: Monazite is the dominant Ra mineral; brannerite and uraninite may be present.

Development: Prospecting, geological and geophysical surveys, limited drilling (1953-1955, 1966).

Geology: Lorrain Formation consists of interbedded quartzite and hematitic radioactive conglomerate near overlap onto Archean granitic basement. Radioactivity is typically 2-3 Bg. locally up to 10 Bg. Few assays available show approx. 0.025% U_3O_8 (RE).

References:

File No.	Company	Work
SSM 212	Cobalt Consolidated Mining Corp.	Drilling 1955
	R. Kada	Drilling 1966
SSM 211) 63.826)	Morra McElrea	Mapping 1955
SSM 213	Norgold Mines Ltd.	Drilling 1955

TOWNSHIPS 4D, 4E

Aubrey Falls Occurrences

Location: No. 1; Aubrey Falls, Township 4D.
No. 2; 1 mile northwest of No. 1, Township 4E.

Development: Trenching, drilling (1949-50).

Geology: A gossan occurs along a fractured zone at the contact of a diabase dike and Archean granitic rocks.

Dimensions and Grade: Zone 2-5 feet wide traced over 800 feet. Gossan contains 0.54% U_3O_8 (RE), fresh material 1.59% U_3O_8 (RE). This on analysis gave 0.10% U_3O_8 (Chem.), 1.5% ThO_2 (estimated). Later surface samples ranged from 0.03-0.79% U_3O_8 (RE). 15 core samples: 8 less than 0.005% U_3O_8 (RE), others range from 0.006-0.01% U_3O_8.

References: ODM Map 2108,
Lang eta al, 1962, p. 283.
Files, SSM 607 (Preston East Dome Mines Ltd.).

TOWNSHIP 28, RANGES 14, and 15

Jay-Dee Enterprises Incorp.

Location: 670 feet south of No. 1 post SSM 55747.

Development: Geology and radiometric surveys, diamond drilling (1957).

Geology: Radioactivity associated with pegmatitic phases of Archean granite.

Dimensions and Grade: Analyses range from 0.012% - 0.066% U_3O_8 over ½-6 feet; best grade: 0.276% U_3O_8 over 0.7 feet.

References: ODM Map 2108,
Files: SSM 255.

TOWNSHIP 28, RANGE 14

Labine-McCarthy Uranium Mines Ltd.

(Collins Property - McCarthy Dike)

Location: Hydro line, east bank Montreal River, Township 28, Range 14.

Radioactive Minerals Present: Pitchblende, carnotite.

Development: 1951: Adit, 180 feet to dike, 1,080 feet along dike to fault, 318 feet N along fault and 50 feet S along fault. Raise 164 feet from workings to surface showings, ten cross-cuts total 192 feet. 1,100 feet underground drilling.

Geology: Archean granite is cut by Keweenawan diabase dikes striking N60°W, and dipping 65-70°S. High Ra was locally recorded in contact zones and low - moderate Ra was recorded in pegmatite phases of granite.

Dimensions and Grade: The main showing lies on the south contact of a dike. A breccia zone lies parallel to the dike and several feet from south contact. This was pitted and trenched over 500 feet. The zone may terminate against the McCarthy Fault, itself filled with diabase. Ra of 4-5 Bg. was recorded over 55 feet. Fractures contain hematite and calcite plus pyrite, chalcopyrite and galena. Development failed to block out any appreciable volume of ore-grade material.

References: ODM Map 2108,
Nuffield, EW.: ODM, Vol. LXIV, pt. 3, 1955,
Files, SSM 614, SSM 615, SSM 617.

Remarks: It is believed that the McCarthy dike is the continuation of the Canagau dike.

Soo-Tomic Uranium Mines Ltd.

Location: Pointe aux Mines area, Township 28 and 29, Range 14.

Radioactive Minerals Present: Allanite, secondary uranium oxides.

Ownership: 1949: Soo-Tomic Uranium Mines Ltd.

Geology: Archean gneiss, granite, and pegmatite are cut by Keweenawan diabase dikes. Allanite occurs in the pegmatite and secondary uranium oxides have been found in sheared material.

Dimensions and Grade: Samples from oxidized sheared material gave 0.02% and 0.04% U_3O_8.

Reference: File: SSM 259.

TOWNSHIP 28, RANGE 15

Patrick Uranium Mines Ltd.

(Patrick Dike)

Location: East of Montreal River, Township 28, Range 15.

Radioactive Minerals Present: Pitchblende.

Development: Stripping, drilling (1950-51).

Geology: A northwesterly-trending Keweenawan dike cuts Archean granite complex. The dike is 30-40 feet wide. Ra is found associated with both contacts in fracture zones either parallel or perpendicular to the contact. The dike may be the faulted continuation of the Ranson dike.

Dimensions and Grade: Fracture zones are found at intervals over 1,100 feet.

References: ODM Map 2108,
Nuffield, E.W.: ODM, Vol. LXIV, pt. 3, 1955, p. 24, with Map No. 1955-1.

Ranwick Mine

Location: Township 28, Range 15.

Radioactive Mineral Present: Pitchblende.

Development: 1948: Discovered by Roy Ranson and transferred to Ranwick Uranium Mines Ltd.
1949-50: Surface exploration: 1,049 foot adit. Two 70-foot crosscuts (one of these 120 feet below showing) and 5 short crosscuts.
1951: Underground drilling.
1961: Leased by Roy Ranson and operated since that date as a tourist attraction.

Geology: Northwest-trending Keweenawan diabase dike cuts Archean granitic complex. Visible pitchblende with calcite-hematite-galena-chalcocite found in veinlets in breccia zones parallel to the dike contact. There are also some radioactive cross-fractures.

Dimensions and Grade: Ten zones of radioactivity separated by barren zones were found. The Ra zones total 302 feet. Bulk back-samples of 279,375 tons graded 0.0319% U_3O_8.

References: ODM Map 2108,
ODM, Vol. LXIV, pt. 3, 1955, p. 25-26,
Northern Miner, July 14, 1966.

MacGregor Cove Occurrences

Location: MacGregor Cove, Lake Superior, Montreal River area, in Township 28, Range 15.

Radioactive Minerals Present: Pitchblende in late fractures close to contacts of Keweenawan diabase dikes. Uraninite, allanite, ellsworthite in Archean granite.

Development: Surface exploration, geological mapping, radioactivity surveys, magnetic survey (1949-50).

Geology: Archean granitic complex is cut by NE-NW and N-striking Keweenawan dikes. Minor radioactivity is associated with pegmatitic phases of Archean granite. Radioactivity and occasional visible pitchblende or U-stain is found with hematite in calcite-filled fractures associated with contact zones of the NW-trending dikes.

References: ODM Map 2108,
ODM, Vol. LXIV, pt. 3, 1955,
Lang et al., 1962, J.P. Dolan occurrence, R.R. Hennessy occurrence, J.G. McCombe occurrence.
Files: SSM 254)
63.206) Damascus Mines Ltd.
SSM 261) Van Lake Prospecting Syndicate
63.213) (Dolan Group on Roche dike).

TOWNSHIP 28 RANGE 16

D.L. McDevitt Occurrence

(Frater Group)

Location: W of ACR between Agawa River and Speckled Trout Creek, Township 28, Range 16.

Radioactive Minerals Present: Pitchblende(?), gummite.

Development: Geological mapping, surface work (1949).

Geology: Archean gneisses, schists, granite, and pegmatite are cut by Keweenawan diabase dikes. Radioactivity is associated with fracture zones in pegmatite close to diabase dikes.

Dimensions and Grade: The No. 1 showing on claim SSM 19925 consists of branching fractures, 1"-18" wide, that strike N75°E, dip 70°, and have been traced for 20 feet. They contain 0.10% U_3O_8 (Chem.) across 12"-18". Secondary uranium stain is visible over 5 feet. The No. 2 showing lies 100 feet NW of No. 1 zone. The No. 3 showing comprises gummite stain in pegmatite near the hanging wall of a diabase dike exposed on claim SSM 19925.

References: ODM Map 2108,
Files: SSM 484
63A.93.

Napray Mining Corporation

Sabourin Group

Location: South of Agawa River, ACR mileage 105-107, Township 28, Range 16.

Radioactive Minerals Present: Pitchblende.

Development: Geological mapping (1959).

Geology: Archean gneiss, granite, and pegmatite are cut by Keweenawan diabase dikes. Radioactive showings are associated with fracture zones in the diabase dikes.

Dimensions and Grade: Cranston showing: On claim S16293 Pitchblende and oxides are found in thin fractures within 85-foot wide diabase dike. Discovery showing: On S16293 a 100-foot wide diabase dike contains fractures that are oxidized and leached over 5 feet. Surface samples at N end contained 0.02-0.04% U_3O_8; fresher samples contained 0.13 and 0.22% U_3O_8.

References: ODM Map 2108,
Lang et al: 1962, p. 275,
Files: SSM 266
63A.72.

TOWNSHIP 29, RANGE 14

Arnott Claims

Robb-Bell Group and Chubb Group

Location: Alona Bay, Lake Superior, Township 29, Range 14.

Radioactive Minerals Present: Pitchblende in fractures in and near diabase. Uraninite(?) in granite pegmatite.

Development: Geological mapping, drilling (1949).

Geology: Archean gneiss-granite-pegmatite complex is cut by 9 northwest-trending Keweenawan diabase dikes.

Dimensions and Grade: Dike A.: Pitchblende in sections over a length of 1,000 feet. Dike D.: Pitchblende and high Ra over length of 100 feet. Two other sections have high Ra and eight other anomalies not trenched.

References: ODM, P.R. 1948-9,
ODM Map 2108,
Files: SSM 284
63A.85.

Batchawana Uranium Mines Ltd.

Location: North of Queminico Lake, east of Theano Point, Township 29, Range 14.

Radioactive Mineral Present: Pitchblende.

Development: Geological, geophysical surveys, 2 pits (1949-50).

Geology: Archean granite-pegmatite complex is cut by at least 8 northwest-trending Keweenawan diabase dikes. A fault breccia consists of fragmented quartz plus hematite and clacite. The fault breccia is exposed over a length of 150 feet.

Dimensions and Grade: No. 1 pit exposed a pod of pitchblende 15 by 10 by 1½ inches.

Reference: Nuffield, E.W.: ODM, Vol. LXIV, pt. 3, 1955, p. 13.
ODM Map 2108,
Files: SSM 285
63.172
SSM 286
63.261.

Bobcam Mines Ltd.

(Affiliate of Camray Mines Ltd.)

Location: Just east of Theano Point, Township 29, Range 14.

Radioactive Minerals Present: Pitchblende.

Development: 1949: Geological, geophysical mapping, trenching.

Geology: Archean granite and pegmatite are cut by NW-trending Keweenawan diabase dikes. Narrow carbonate veinlets with pitchblende occur in fractures in diabase perpendicular to the contacts with the country rocks.

References: ODM, Vol. LXIV, pt. 3, 1955, p. 13.
ODM Map 2108,
Lang et al, 1962, p. 280,
Files: SSM 287
63.179.

A. Breton Showing

Location: West side of Highway 17 at south end of Alona Bay, Lake Superior, Township 29, Range 14.

Radioactive Minerals Present: Pitchblende.

Development: 1950: Discovered by Karl Gunterman.

Geology: A Keweenawan diabase dike cuts Archean granite complex and the unconformably overlying Keweenawan lava. An aggregate of calcite-hematite-pitchblende occurs in fractures within 1-2 inches of diabase-granite contact.

Reference: Nuffield, E.W.: ODM, Vol. LXIV, pt. 3, 1955, p. 14.
ODM Map 2108.

Camray Mines Ltd.

Location: Theano Point, Lake Superior, Township 29, Range 14.

Radioactive Minerals Present: Pitchblende.

Development: 1847: First recorded occurrence of uranium in Canada from east shore of Lake Superior.
1948-49: Surface geological and geophysical surveys. Two-compartment shaft to 150 feet, at 138-foot level 505 feet drifting. Underground drilling at discovery showing. 230-foot adit on No. 2 showing ½ mile west of Highway 17.

Geology: Archean gneiss-granite-pegmatite complex is cut by northwesterly-trending Keweenawan diabase dikes. The main showing consists of a series of mineralized tension fractures in granite along the footwall contact of a dike. The No. 2 showing is similar. Several other minor occurrences of a similar nature are found on the property.

Dimensions and Grade: No. 1 Showing: Mineralized fractures in patches 250 feet long and 130 feet long separated by 230-foot barren zone. W of shaft, face samples gave 0.24% U_3O_8/3.0 feet for a length of 52 feet. 90 feet from shaft, average muck samples 0.044% U_3O_8, average back samples 0.043% U_3O_8. At 150 feet E of shaft and extending for 110 feet: Average muck samples 0.02% U_3O_8, average back samples 0.037% U_3O_8. No. 2 Showing: Veins 2-3 feet in granite with a vertical extent of 4-5 feet with best concentration at east end of showing. Adit below showing assays generally trace or no U_3O_8, a few scattered good assays.

References: Le Conte, John L., 1947: On coracite a new ore of uranium; Amer. Jour. Sci., Vol. 3, 1847, p. 173.
ODM, Vol. LXIV, pt. 3, 1955, p. 15-19.
ODM Map 2108,
Files: SSM 288 SSM 289 SSM 937
63A.79 63.177

Remarks: It is generally believed that the discovery showing is probably the original "coracite" locality; "coracite" was subsequently proved to be a variety of pitchblende.

Hathaway Metal Mines Ltd.

Location: N shore of Cozens Cove Lake Superior, at the west end of Rankin Mining Location, Township 29, Range 14, and Kincaid township.

Radioactive Minerals Present: Pitchblende.

Development: Old copper prospect.
1949: Danaray Mines Ltd., geological mapping, stripping and trenching. 1951: Scintillometer survey. 1966: Hathaway Metal Mines Ltd., partial re-staking as base-metal prospect.

Geology: Western third of property is underlain by interbedded lavas and sediments. These are cut by Archean granite and pegmatite which underly the greater part of the property. Pegmatite has local slight Ra. Keweenawan lavas form the north shore of Pointe aux Mines. At least 4 sets of Lower Keweenawan diabase dikes are found on the property. Ra is associated with fractures in or near diabase contact zones.

Dimensions and Grade: No. 1 Showing: On claim SSM 17124 a Ra zone, 20 feet wide, was stripped for 130 feet of which 80 feet were radioactive. Grab samples No. 1: 0.5277, 0.67% U_3O_8 RE, 0.66% (Chem.). No. 2: 0.421, 0.60% U_3O_8 RE. No. 3 Showing: Stringer of pitchblende 1/8" wide and 10" long at shore on claim SSM 19536. No. 4 Showing: Similar to No. 3 on shore on claim SSM 17038.

References: Lang et al, 1962, p. 258.
ODM Map 2108,
Files: SSM 290)
63A.73) Danaray Mines Ltd.
SSM 664) Hathaway Metal Mines Ltd.

Robb - Murmac Uranium Mines Ltd.

Location: Beta Lake, east of Highway 17, Township 29, Range 14.

Radioactive Mineral Present: Pitchblende.

Development: Stripping, trenching, drilling, geological and geophysical surveys (1949).

Geology: The property is underlain by an Archean granite-pegmatite complex (areas in granite, Ra up to 7 Bg.) cut by at least 8 Keweenawan diabase dikes. Fractures in the diabase contact zones are filled with calcite and hematite with or without pitchblende.

Dimensions and Grade: In the main showing a trench had Ra up to 22.8 x Bg. Another showing with visible pitchblende gave 8.1 x Bg. Near the contact fractures occur over a width of 1 foot and a length of 400 feet. One 1-inch fracture was traced 100 feet; the Ra increases where the fracture horsetails or is crossed by other fractures.

References: Nuffield, E.W.: ODM,Vol. LXIV, pt. 3, 1955, p. 21-23.
Files: SSM 295
63.173.

Pennwood Gold Mines Ltd.

Location: Township 29, Range 14.

Radioactive Minerals Present: A) Leached pitchblende, gummite in fracture in diabase. B) Uraninite and ellsworthite in pegmatite.

Development: Geological, geophysical surveys, stripping, trenching (1949).

Geology: Archean metavolcanics and metasediments are granitized and intruded by granite. These rocks are cut by Keweenawan diabase dikes. The radioactivity is due to feldspar, uraninite, and in one case, ellsworthite. On dike "A" Ra 10 x Bg. has been recorded. Several areas with Ra up to 4 x Bg. on diabase remnants in contact with granite were found.

References: ODM Map 2108,
Files: SSM 483
63A.67

TOWNSHIP 29, RANGE 15

Canagau Mines Ltd.

Location: Canagau or Ranson dike, south of Highway 17, east of Montreal River Harbour, Township 29, Range 15.

Radioactive Mineral Present: Pitchblende.

Development: Mapping, stripping, and trenching (1949).

Geology: The property is underlain by Archean gneiss, granite, and pegmatite cut by several Keweenawan diabase dikes which cross the property. The Ranson dike is radioactive; the Canagau dike over a strike length of ¾ mile has nine radioactive sections. No. 4 section is the main showing. The vein material consists of calcite, hematite, pitchblende and oxides and in one sample, wire silver. One patch of pitchblende 2 feet long and ¼ inch thick was found. The maximum radioactivity was located at the intersection of fractures.

References: ODM, Vol. LXIV, pt. 3, 1955, p. 20,
ODM Map 2108,
File: SSM 998.

Falconbridge Nickel Mines Ltd.

Location: Trans Canada Highway (No. 17), east of Montreal River Harbour, Township 24, Range 15.

Radioactive Mineral Present: Pitchblende.

Development: Trenching, 800 feet drilling, 8 holes (1949-50).

Geology: Keweenawan diabase dikes cut the Archean granite complex. The showings are located on the Ranson dike: At the No. 1 showing, on east side of Highway 17, pitchblende occurs in fractures in the granite footwall of the dike. At the No. 2 showing, on west side of Highway 17, two radioactive fractures were located, one in the dike and one at the contact.

References: ODM Map 2108,
ODM, Vol. LXIV, pt. 3, 1955, p. 25,
Files: SSM 998.

F.D. Roche Occurrence

Location: Ranson dike, Montreal River area, Township 29, Range 15.

Radioactive Mineral Present: Pitchblende.

Development: Stripping (1949).

Geology: A Keweenawan diabase dike (the Ranson dike) cuts Archean granite complex. Radioactive fractures occur in the dike.

References: ODM Map 2108,
Nuffield, E.W.: ODM, Vol. LXVIV, pt. 3, 1955, p. 26.

Remarks: Property was purchased by Ranwick Mines Ltd.

TOWNSHIP 29, RANGE 16

Franz Property

Location: Agawa Bay area, east shore of Lake Superior between Barrett and Sinclair islands, Township 29, Range 16.

Radioactive Minerals Present: Pitchblende and uraninite(?).

Development: Trenching, geological and radiometric surveys (1950-51).

Geology: The Archean granite-gneiss complex is cut by Keweenawan diabase dikes striking NW, NE, and N. The Franz dike strikes northwest and contains fractures filled with pitchblende, calcite, and hematite.

Dimensions and Grade: In the main trench 2 fractures in diabase strike N75°W. A fist-sized sample of pitchblende was found in one of these fractures.

References: ODM Map 2108,
ODM, Vol. LXIV, pt. 3, 1955, p. 20-21.
Files: SSM 298)
63A.107)Highland Prospecting Syndicate.

The Ottawa Associates

(J.G. McCombe)

Location: Agawa River - Frater area, 1 mile north of Agawa River, Township 29, Range 16.

Radioactive Minerals Present: Pitchblende.

Development: 1949, Mapping, stripping 184 feet. 1956, 9 holes, totalling 390.5 feet.

Geology: Archean granite-gneiss complex is cut by two sets of Keweenawan diabase dikes. Uranium mineralization occurs in fractures and in fault breccia located along a diabase-granite contact.

Dimensions and Grade: Uranium mineralization is found on claims SSM 18623-24 and 18079. This has been stripped for

184 feet but is open at both ends. The width ranges from 2"-8". One 4-inch vein of massive pitchblende was found.

References: ODM Map 2108,
Lang et al, 1962, p. 246,
Files: SSM 267
63A.78
SSM 299.

TOWNSHIP 30, RANGE 17

Soo-Tomic Uranium Mines Ltd.

Baldhead River Occurrence

Location: Lake Superior at mouth of Baldhead River, Township 30, Range 17.

Radioactive Mineral Present: Pitchblende.

Development: Surface exploration, 751 feet of drilling (1950-51).

Geology: Archean granite-gneiss complex is intruded by diabase dikes. A breccia zone was traced for 80 feet along a diabase footwall. The zone averages 5 inches in thickness and contains pitchblende. A parallel zone 4 feet away is 6 inches wide and was traced for 60 feet.

Dimensions and Grade: Assays of up to 7.30% U_3O_8 were obtained.

References: Lang et al, 1962, p. 248.

TOWNSHIP 137

Pecors Zone (East)

Location: East end of Pecors Lake, Township 137 extending into Township 143.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: Geological and geophysical mapping, diamond drilling 44 holes: 15,873 feet.

Years of Activity: 1953-1957 Algom Uranium Mines Ltd. (later Rio Algom Mines Ltd.).

Geology: Lower Mississagi uraniferous conglomerate and arkose lie unconformably on Keewatin metavolcanics and metasediments. The Lower Mississagi is intruded by a Nipissing diabase sill and the outcrop is repeated by a thrust fault on the hanging wall of the sill. At the east end of Pecors Lake an embayment in the Huronian-Pre-Huronian contact represents the outcrop of an old erosional channel. Conglomerate is restricted to the channel which rakes NW into Township 143.

Dimensions and Grade: At main showing: 1.0 lbs. U_3O_8 / 4.5 feet over a strike length of 1,300 feet. No data has been published on the repeated section north of the sill. Deep drilling in Township 143 gave negative results.

References: ODM Map 2108,
ODM, G.R. 10, 1962 p. 62-64 with Map 2003,
Files: SSM 593; SSM 719; SSM 1028.

Whiskey Zone

Location: South end of Whiskey Lake, southwest of Rum Point, Township 137.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: 1953-1956, Geological , geophysical surveys. Diamond drilling carried out by various companies eventually merged into Rio Algom Mines Ltd. Area largely restaked by L.T. Chandler 1966 and acquired 1967 by Lattane Refining of Switzerland.

Geology: At south end of Whiskey Lake Lower Mississagi arkose lies unconformably on Keewatin metavolcanics and metasediments. A shallow embayment in the contact represents an erosional channel. Within the channel one weakly radioactive pyritic conglomerate bed has been drilled.

Dimensions and Grade: Best intersections were 0.03% U_3O_8 / 10 feet, and 0.09% U_3O_8/5.5 feet. Deeper drilling south of Batty Lake gave little encouragement.

References: ODM Map 2108,
Robertson, J., 1962: ODM, G.R. 10, with Map 2003,
Files: SSM 557: British Columbia Explorers (1953),

SSM 1029: Grand Chibougamau Mines Ltd.
SSM 583: Chubb - Featherstone.
SSM ?: Armour Uranium and Copper Mines Ltd.
SSM 593: Algom Uranium Mines Ltd.

TOWNSHIP 143

Pardee Zone

Location: South central Township 143 in vicinity of Pardee and Stinson Lakes to west end Pecors Lake.

Radioactive Minerals Present: Brannerite, uraninite, monazite, thucholite.

Development: Geological and geophysical surveys, diamond drilling, adit on Acquarius option (1953-56, 1965-67).

Geology: Lower Mississagi arkose and conglomerate are overlain by Lower Mississagi argillite and quartzite. The beds strike east and have a shallow north dip. The Pardee channel rakes to the northwest and the ore beds probably are cut off by an unconformity within the Lower Mississagi sequence.
The best developed conglomerate in the Pardee channel is the Pardee reef which extends into the Nordic channel in Township 149.

Dimensions and Grade: Abeta: 0.053% U_3O_8/9.4 feet to 0.14% U_3O_8/4 feet.
Acquarius Option: (Pardee-Van Horn Lakes) 5,390,000 tons averaging 0.07% U_3O_8.
Calder - Bousquet: Average grade 0.0437% U_3O_8/10 feet (several other beds present). Basal reef 0.037% U_3O_8/9 feet. Bed 10 feet above Pardee reef 0.038/3.1 feet.
Stancan Uranium: (Flying Goose Lake) some radioactive quartzite and pebble conglomerate at depth of 2,915-2,936 feet, near margin of channel.
St. Mary's Uranium Mines Ltd.: Deep hole Twp. 149-143 boundary with spotty radioactivity. 2nd hole 1,000 feet E of Twp. boundary, 0.05% U_3O_8/30 feet.
Rio Algom Mines Ltd. (Pecors W): Drill holes over area of 1,800 feet by 1,100 feet averaged 0.046% U_3O_8/4.9 feet.

References: ODM Map 2108,
ODM, G.R. 4, 1961.

Abeta Ground: J.P. McVittie, optioned to The Mining Corporation of Canada, Abeta Mining Corporation, Files SSM 538, SSM 545.
Acquarius Ground: McIntyre Porcupine Mines Ltd. subsidiary Acquarius Porcupine Gold Mines Ltd., renamed Pardee Acquarium, acquired by Milliken Lake Uranium Mines Ltd. and held by Milliqua Mines Ltd. merged into Rio Algom Mines Ltd., Files SSM 530, SSM 573.
Calder Bousquet Ground: New Jersey Lead and Zinc Corporation, Calder Bousquet Gold Mines Ltd., Pardee Amalgamated Mines Ltd. (absorbed 1961 by Rio Algom Mines Ltd.), SSM 530, SSM 813.
Stancan Uranium Ground: (Group 2-5-2) Stancan Uranium Corporation, The Stanward Corporation - Stanrock Uranium Mines Ltd., Files SSM 716, SSM 963.
St. Mary's Uranium Mines Ltd.: Owned by Rio Algom Mines Ltd., File SSM 533.
Pecors West: Algom Uranium Mines Ltd., File SSM 593.

Remarks: Drilling resumed by Rio Tinto Canadian Exploration Ltd. 1965-1967. See File SSM 813.

Pecors Zone (Northwest Part)

Location: Pecors Lake, Township 143, adjacent to Township 137.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: Geological and geophysical surveys, drilling (1953-57).

Geology: SW shore of Pecors Lake follows flank of ridge bounding Pecors Channel. To south ridge of metasediments including iron formation, to north Upper Mississagi quartzite and overlying formations. Lower Mississagi arkose and conglomerate outcrop in Township 137 and underlie Pecors Lake area.

Dimensions and Grade: Best intersections obtained by Algom Uranium Mines Ltd.: 0.035% and 0.03% ThO_2/1.3 feet.
0.025% and 0.035% ThO_2/7.5 feet.
Vite Uranium Mines Ltd. (Vite Point, Pecors Lake) two easterly holes intersected Pecors bed. Analyses showed 0.054% U_3O_8/3.7 feet and 0.039% U_3O_8/4.7 feet.

References: ODM Map 2108,
Robertson, J.A., 1961: ODM, G.R. 4, with Map 2002,
Robertson, J.A., 1967: ODM, M.P. 9.

Files: SSM 593. Algom Uranium Mines Ltd.,
SSM 544. Vite Urabium Mines Ltd.

Remarks: Vite ground acquired 1966 by Kerr McGee Corporation.

Nasco-Cobalt Silver Mines Ltd.

Location: Poppy Lake at NW corner of Township 143.

Development: 3 Drill holes (1955-57).

Geology: At surface the Gowganda Formation lies unconformably on Serpent Formation, and both formations are cut by diabase dikes. The basement contact in No. 1 hole was intersected at 4,242 feet.

Dimensions and Grade: Hole No. 1: Scattered radioactivity over 339 feet.
Hole No. 2: Several radioactive beds over 110 feet; best assay was 0.06% U_3O_8/2 feet; wedged section showed 0.038% U_3O_8/5 feet.
Hole No. 3: 0.065% U_3O_8/2 feet.

Reference: Robertson, J.A., 1961: ODM, G.R. 4, p. 51, with Map 2001.

TOWNSHIP 144

Denison Mines Ltd. (Can-Met Mine)

Location: Eastern part of Quirke Lake, Township 144, with continuation of zone into Township 150.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: Drilling completed March 1956 indicated 6,000,000 tons averaging 0.1% U_3O_8/15 feet. Two shafts were sunk: No. 1 shaft: 2-compartment to 2,216 feet and No. 2 shaft: 3-compartment production shaft to 2,395 feet. A mill rated at 3,000 tons per day was completed in October 1957. On March 24, 1960, Can-Met Explorations Ltd. merged with Consolidated Denison Mines Ltd. to form Denison Mines Ltd. and operations ceased April 1960.

Geology: Along the north shore of Quirke Lake the Lower Mississagi Formation is cut out by overlap of the overlying formations onto granitic basement and does not outcrop. Underlying central Quirke Lake the continuation of the Quirke channel strikes generally southeast dying out toward the east end of the lake. The channel is over the greenstone side of the granite-greenstone contact. The orebed locally rests on basement but generally is in an arkose sequence.

Production: See Table 1.

References: Annual Reports: Can-Met Explorations Ltd., 1955-1959; Denison Mines Ltd., 1960, 1966.
Griffith, J.W., 1967, p. 98-101.

North Rock Explorations Ltd.

Location: Southeast bay of Quirke Lake, Township 144 and west end of Quellette Lake.

Radioactive Minerals Present: Not stated, believed to be brannerite, uraninite and monazite.

Development: Diamond drilling. Roche Mines Ltd., 5 holes to 2,000 feet. Company renamed Jan. 1963 North Rock Explorations 1966. Wedging of previous holes. 1967, new drilling program.

Years of Activity: 1954-1955, 1966-1967.

Geology: Surface geology comprises upper members of Bruce Group intruded by a Nipissing diabase sill between Quirke and Ouellette lakes. Drilling was undertaken on the east shore of Quirke Lake and islands in southeast bay (R3 and R5).

Reserves: In November 1967, reserves were estimated at 1.6 million tons grading 1.5 lbs. U_3O_8/ton (Northern Miner November 23, 1967).

Remarks: In Nov. 1967, Stanrock Uranium Mines Ltd. entered an option agreement under which it may acquire a 51% interest in the property.

References: ODM, G.R. 4, 1961, p. 54,
Files: SSM 1032.

Rio Algom Mines (Conecho Property)

Location: Conecho Point, east shore Quirke Lake to Teasdale Lake, Township 144.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: Geological, geophysical surveys, diamond drilling.

Years of Activity: 1954-1955.

Ownership: Conecho Mines Ltd. merged (1957) with Consolidated Frederick Mines Ltd., and assets sold to Rio Algom Mines Ltd. (1961).

Geology: Surface exposures show the Middle Mississagi lying on granitic basement north of Quirke Lake. A thick diabase sill intrudes Upper Mississagi quartzite between Quirke and Teasdale lakes.

Dimensions and Grade: 2,000,000 tons grade 1.4 lbs. U_3O_8/6 feet. (E.L. Evans, company report, 1955).

References: Robertson, J.A., 1961: ODM, G.R. 4, p. 49 with Map 2002.
Files: SSM 589.

Rio Algom Mines Ltd. (Panel Mine)

Location: Mine; north central Quirke Lake. Mill and service buildings; north shore Quirke Lake, Township 144.

Radioactive Minerals Present: Brannerite, uraninite, monazite, thucholite.

Ownership: Emerald Glacier Uranium Mines Ltd. - Panel Consolidated Uranium Mines Ltd. merged into Northspan Uranium Mines Ltd. merged into Rio Algom Mines Ltd.

Development: Geological, geophysical surveys, drilling. No. 1 Shaft to 1,800 feet. No. 2 Shaft to 1250 feet. The shafts are connected by an incline 2,733 feet long. The mill was rated at 3,000 t.p.d., and began operations in Feb. 1958.

In 1958 reserves were estimated at 4,280,000 tons 2.16 lbs. U_3O_8 per ton after 10% dilution. By agreement between Northspan and Algom the Panel workings were extended into Algom's Quirke property. Mine closed in 1961. Further drilling has been carried out in the area between Panel mine and Conecho Point.

Production: See Table 1.

Reserves:

Proven -	77,000 tons	2.35 lbs. U_3O_8/ton
Probable -	273,000 tons	2.25 lbs. U_3O_8/ton
Possible -	8,967,000 tons	2.49 lbs. U_3O_8/ton

(Prospectus 1963)

References: ODM, G.R. 4, 1961,
Griffith, J.W., 1967, p. 152-162,
Files: SSM 561, SSM 376, SSM 712, SSM 1072.
63A.371
Rio Algom Mines Ltd.: Prospectus, March 1963 (TSE),
Rio Algom Mines Ltd.: Prospectus, March 1966 (NYSE).

Stanrock Uranium Mines Ltd.

Location: The shafts, mill and service buildings are located on a prominent headland on the south shore of central Quirke Lake, Township 144. The workings extend into Township 150.

Ownership: The Z-7 claim group of Zenmac Metal Mines Ltd. was purchased by Stancan Uranium Corporation in 1954. Stanrock Uranium Mines Ltd. was formed to operate the property.

Radioactive Minerals Present: Uraninite, brannerite, monazite, thucholite.

Development: Exploratory drilling 1955-6 indicated reserves of 5,077,880 tons grading 0.109% U_3O_8/ton (no dilution) and a further potential of 4,000,000 tons (no dilution). In 1956 2 shafts and 3,300-ton mill were started. The No. 1 Shaft is a 3-compartment shaft to 3,344 feet, and the No. 2 Shaft is a 2-compartment to 2,907. Milling commenced in 1958.
Stanrock Uranium Mines Ltd. pioneered the bacterial leaching process for uranium, initially in conjunction with standard mining, and since August 1, 1965 all production from the mine has been by this method. In 1965 alterations were made to the

extraction circuit to permit recovery of rare-earth concentrate.

Geology: The main ore bed at Stanrock is 10 feet thick and has generally been mined over a width of seven feet. The Quirke Thrust duplicates the ore zone over a width of 1,000 feet - the hangingwall block being referred to as No. 1 bed, the footwall block being referred to as No. 2 bed. In the eastern part of the mine a No. 3 bed was found under the No. 2 bed and several stopes were opened in it. A few diabase dikes cut the ore.

Production: See Table 1.

References: ODM, G.R. 4, 1961,
Robertson, J.A., 1968: ODM, G.R. (in press),
Griffith, J.W., 1967, p. 182-193,
Stanrock Uranium Mines Ltd.: annual reports,
Files: SSM 653, SSM 716.

TOWNSHIP 149

Preston Mines Ltd. (Stanleigh Mine)

Location: Penelope Lake, 1½ miles northeast of Elliot Lake, Township 149.

Ownership: Stanleigh Uranium Mining Corporation was merged August 1960 with Preston East Dome Mines Ltd. to form Preston Mines Ltd.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: Diamond drilling indicated that ore-grade conglomerates occurred over a length of 6,900 feet downrake from the Milliken property.
Two beds of ore-grade conglomerate, each about 10 feet thick, are separated by a quartzite bed 5 to 22 feet thick. These beds strike east-west and dip 8° to 10°N. There is also evidence of a third reef higher in the sequence.
Two shafts were collared in April 1956. No. 1, a 4-compartment shaft, intersected ore at 3,493 feet and bottomed at 3,792 feet, and No. 2, bottomed at 3,650 feet having intersected the ore zone at 3,639 feet below the collar (the deepest shaft intersection in the Blind River - Elliot Lake camp).
Construction of a 3,000-ton mill was begun in 1956, and milling began March 1958. Production ceased in November, 1960.

Production: See Table 1.

References: Robertson, J.A., 1968: ODM, G.R. (in press).
Griffith, J.W., 1967, p. 175-181,
Stanleigh Uranium Mines Ltd.: annual reports,
Files: SSM 403.

Rio Algom Mines Ltd. (Buckles Mine)

Location: Southeast Township 149 between Highway 108 and Nordic mine.

Ownership: Buckles Algoma Uranium Mines Ltd. taken over by Spanish American Mines Ltd. and merged into Northspan Uranium Mines Ltd. who operated the Buckles mine and which was merged into Rio Algom Mines Ltd. in 1960.

Radioactive Minerals Present: Brannerite, uraninite, monazite.

Development: 1953-1956 Geological, geophysical surveys, drilling, 35 holes totalling 3,344.2 feet, indicated 486,500 tons 0.124% U_3O_8/ton over 10 feet. The ore bed lies 20 feet above basement and dips 20°N. An 80-foot shaft was sunk.

Production: Ore from Buckles was milled at the Spanish American and Lacnor mills operated by Northspan Uranium Mines Ltd. 82,649 tons were milled at Spanish American, and 106,949 tons were milled at Lacnor. All development was in ore and the property is regarded as mined out.

References: Robertson, J.A., 1968: ODM. G.R. (in press),
Griffith, J.W., 1967, p. 125,
Annual Reports: Northspan Uraium Mines Ltd.,
Files: SSM 366
63A296.

Remarks: The Buckles reef is the updip continuation of the Nordic reef.

Rio Algom Mines Ltd. (Lacnor Mine)

Location: Dumbell Lake, east central Township 149.

Radioactive Minerals Present: Brannerite, uraninite, monazite, thucholite.

Ownership: Lake Nordic Uranium Mines Ltd. was merged into Northspan Uranium Mines Ltd. which in turn was merged into Rio Algom Mines Ltd.

Years of Activity: 1953-1960, 1963-1964.

Development: Diamond drilling indicated 8,289,207 tons grading 0.101% U_3O_8/ton. Two shafts 2,754 and 2,720 feet were sunk. A 4,000 ton mill was constructed. The mine was closed and allowed to flood in 1960.

Production: See Table 1.

Reserves: Reserves on the Lacnor property are included with those on the Milliken property.

References: Annual Reports: Northspan Uranium Mines Ltd., Rio Algom Mines Ltd.
Robertson, J.A., 1968: ODM, G.R. (in press),
Griffith, J.W., 1967, p. 126-130,
Files: SSM 525, SSM 1027.

Rio Algom Mines Ltd. (Milliken Mine)

Location: Central Township 149, one and a half miles east of Elliot Lake.

Ownership: Milliken Lake Uranium Mines Ltd. merged (1960) into Rio Algom Mines Ltd.

Radioactive Minerals Present: Brannerite, uraninite, monazite, minor amounts of thucholite and radioactive hydrocarbon.

Development: Geological and geophysical surveys, diamond drilling. By 1957, "diamond drilling indicated 7,269,846 tons averaging 0.098 percent U_3O_8, and that the "additional tonnage potential for the property is estimated at from 14,000,000 to 18,000,000 tons". (Lang et al, 1962, p. 139). These reserves were in the upper or Nordic reef. When the shafts were sunk (No. 1, to an initial depth 3,000 feet; and No. 2, to an initial depth of 3,800 feet) it was found that the lower reef was of ore grade and thickness.
In 1964 water from Lacnor workings was bled off through Milliken mine and the dissolved uranium extracted. A raise

was driven from the Milliken workings into the Lacnor workings prior to termination of conventional mining and milling in June 1966. Extraction of uranium from mine waters was continued. By the end of 1964 some 49,000 lbs. of U_3O_8 had been recovered. The leaching program was terminated in September 1965. The 1965 production was 80,000 lbs. U_3O_8. The remaining equipment was salvaged and the property placed on an idle mine basis.

Production: See Table 1.

Reserves:	Proven :	383,000 tons	2.08 lbs. U_3O_8/ton
	Probable:	907,000 tons	2.01 lbs. U_3O_8/ton
	Possible:	9,920,000 tons	2.16 lbs. U_3O_8/ton

(From 1963 Rio Algom Mines Ltd. prospectus).

References: Robertson, J.A., 1968: ODM, G.R. (in press), Griffith, J.W., 1967, p. 130-137,
Annual Reports: Milliken Lake Uranium Mines Ltd.
Rio Algom Mines Ltd.
Files: SSM 706.

Rio Algom Mines Ltd. (Nordic Mine)

Location: North Nordic Lake, southeast Township 149.

Ownership: Algom Uranium Mines Ltd. was merged in 1960 with Rio Algom Mines Ltd.

Radioactive Minerals Present: Brannerite, uraninite, monazite, and traces of thucholite, radioactive hydrocarbon, and coffinite.

Development: Commencing in 1954 47,000 feet of surface drilling in 109 holes spaced about 250 feet apart on strike and 450 feet downdip outlined the Nordic reef. The average thickness was 10.5 feet, the strike N80°E and dip 12° to 25°N (average 17°). Underground workings and drilling have indicated ore-grade sections in the basal reef particularly in the eastern parts of the mine and in a bed overlying the main reef. The 6-compartment shaft was sunk to an initial depth of 890 feet by December 1955. A mill rated at 3,000 tons per day was constructed and milling commenced on 1 January 1957. Further surface drilling was carried out between Nordic and Lacnor mines in 1958, during the winter of

1961-1962, and again in 1964. Shaft deepening was carried out in 1958 and 1959 to 1,330 feet and in 1960 and 1961 to 1,780 feet.

Production: See Table 1.

Reserves: (as of Jan. 1, 1966)

Proven:	831,000 tons	2.19 lbs. U_3O_8/ton.
Probable:	2,220,000 tons	2.07 lbs. U_3O_8/ton.
Possible:	10,108,000 tons	2.13 lbs. U_3O_8/ton.

References: Robertson, J.A., 1968: ODM, G.R. (in press), Griffith, J.W., 1967, p. 138-151,
Annual reports: Algom Uranium Mines Ltd., Rio Algom Mines Ltd.

Silvermaque Mining Company

Location: Northeast end of Elliot Lake, adjacent to Stanleigh property, Township 149.

Radioactive Minerals Present: Not stated, believed to be brannerite, uraninite and monazite.

Development: Norsyncomaque Mining Ltd. 1955: geological and geophysical surveys. Diamond drilling at NE end of property. Deep drilling indicated 2,500,000 tons grading 2.2 lbs. U_3O_8/ton adjacent to Stanleigh property.
Silvermaque Mining Ltd.: 1965-67, deep drilling on western part of property.

Geology: At surface the Upper Mississagi, Bruce, and Espanola formations are intruded by a thick sill-like body of Nipissing diabase. At depth the Lower Mississagi formation includes interbedded arkose and conglomerate near the margin of the Nordic channel. Greenstone basement lies at 2,900 to 3,300 feet in the western area.

Reserves: At least five uraniferous reefs were encountered. These were designated A, B, C, D and F. Correlation with reefs on the east side of the property which are continuous with those on the Stanleigh property of the Nordic ore-zone has not been established. Reefs A and D were encountered in insufficient holes to establish continuity. F reef has an approximate grade of 1.08 lbs. U_3O_8/ton in at least 200,000 tons, and B and C reefs had a grade considerably below 1.0

lbs. U_3O_8/ton in at least 14 million tons (Northern Miner, 15 June, 1967).

References: Robertson, J.A., 1968: ODM, G.R. (in press) with Map 2113.
Files: SSM 698.

Genex Mines Ltd.

Location: Adjacent to Highway 108, at Porridge Lake, Township 149.

Development: Surface mapping, drilling: 12 holes totalling 1,234 feet (1954-56).

Geology: A thin strip of Lower Mississagi arkose outcrops along the north boundary of the property but the property is largely underlain by Archean granitic complex.

Dimensions and Grade: The main ore bed is six and a half feet thick in the hole G-1 and averaged three and a half feet in holes G-3 - G-6 inclusive. Some ten-eleven thousand tons of ore-grade material lie on the property and there is no possibility of establishing further reserves (company report).

References: Robertson, J.A., 1968: ODM, G.R. (in press) with Map 2113.
Files: SSM 380) SSM 710.
63A.282

Rio Tinto Canadian Exploration Ltd.

Location: North shore of Elliot Lake east of Townships 149-155 boundary.

Ownership: Kamis Copper Mines Ltd., name changed to Kamis Uranium Mines Ltd. which merged, September 1960, into Ver-Million Gold Placer Mining. The latter company's charter was cancelled in 1964. The ground was restaked in 1965 by Rio Algom Mines Ltd. and exploration carried out by Rio Tinto Canadian Exploration Ltd.

Development: Geological and geophysical surveys.
1956: Two diamond drill holes: 3,035 feet and 3,170 feet.
1965-6: Rio Tinto Canadian Exploration drilled two holes: one

terminated at 1,280 feet and the second was completed to 3,216 feet.

Geology: The greater part of the property is underlain by Upper Mississagi quartzite which dips 10-20°N. It is intruded by Nipissing diabase and cut by late faults. The lowermost part of the Lower Mississagi Formation comprises arkose and conglomeratic quartzite on a greenstone basement. The Archean-Huronian contact lies at a depth of 3,000 feet at the northern part of the property.

Dimensions and Grade: In hole K2 assays ranged from trace U_3O_8 to 0.081% U_3O_8/ton over 3.0 feet, but the grade was generally less than 0.03% U_3O_8/ton. Rio Tinto Canadian Exploration assayed conglomeratic intersections from the completed holes for U_3O_8 and Th. The best assay obtained was 1.33 lbs. U_3O_8/ton and 0.58 lbs. Th/ton over 9 inches.

References: Robertson, J.A., 1968: ODM, G.R. (in press) with Map 2113.
Files: SSM 381) SSM 740.
63.292)

Stanrock Uranium Mines Ltd.

Crotch Lake Occurrence

Location: Crotch Lake-McCabe Lake, Townships 149-143.

Radioactive Minerals Present: Not stated, believed to be brannerite, uraninite and monazite.

Ownership: 1. Basic Atomics Ltd., name changed to Stanatomic Uranium Mines Ltd. (70% owned by Stancan Uranium Corporation). 2. Stancan Uranium Corporation, name changed August 1960 to The Stanward Corporation, all assets of which were acquired June 1967 by Stanrock Uranium Mines Ltd.

Development: Geological and geophysical surveys by Stancan Uranium Corporation on both properties. Prior to 1956 deep drilling on both properties. Deep drilling resumed on Stancan property in 1967 by Stanrock Uranium Mines Ltd.

Geology: At surface, Gowganda Formation lies unconformably on Serpent and Espanola formations and all three are cut by

Nipissing diabase. At depth drilling indicates presence of Lower Mississagi Formation and the lowermost uraniferous member is present in the southernmost deep hole but may be cut out by an unconformity to the north.

Dimensions and Grade: Hole C-2-4 (later wedged) entered greenstone basement at 3,624 feet.

Assayed samples from the original hole indicated a grade of 0.648 lb. U_3O_8 per ton over 34 feet with a higher grade of 1.113 lb. U_3O_8 per ton over 6.2 feet and highest section of 1.34 lb. U_3O_8 per ton over 5.1 feet. The U_3O_8/ThO_2 ratio varied from 1:1 to 4:1. Assays from the wedged section indicated 35 feet with a grade of 0.8 lb. U_3O_8 per ton with a higher-grade portion grading 1.524 lb. U_3O_8 per ton over 9.65 feet and the highest section 1.983 lb. U_3O_8 per ton over 7.05 feet. The U_3O_8/ThO_2 ratio varied from 1:2.5 to 4:1 with uranium generally in excess of thorium.

According to D.S. Robertson (company geologist, personal statement to the author) hole C-2-6 contained no significant uranium values and in hole C-2-7 the polymictic conglomerate in the Lower Mississagi sequence lies in the oligomictic zone.

Drilling on the property was resumed in June 1967 and one of the earlier holes on the northern part of the property in Township 149 was wedged and the intersection obtained was considered encouraging but intersections were not of ore-grade (Northern Miner, Aug. 17, 1967). Between August and November a second wedge was completed and two new holes were completed. The new holes failed to encounter either conglomerate or values (Northern Miner, Nov. 23, 1967).

References: Robertson, J.A., 1961: ODM, G.R. 4.
Robertson, J.A., 1968: ODM, G.R. (in press) with Map 2113.
Files: SSM 556 (Basic Atomics).
SSM 716 (Stancan Uranium).

TOWNSHIP 150

Denison Mines Ltd. (Denison Mine)

Location: West shore of Quirke Lake, mine workings under west central Quirke Lake.

Development: Geological mapping and diamond drilling commenced in 1954. In 1955, drilling indicated reserves of 17 million tons grading 0.11 percent U_3O_8. Further widely spaced drilling indicated reserves of 136,787,400 tons with an average grade of 2.78 pounds U_3O_8/tons localized in the Denison reef.

The No. 1 shaft (1,857 feet, 6 compartments) was completed in 1956. The second shaft (8 compartments to 2,750 feet) was completed in 1957.

Geology: R.J. Gunning (mine geologist at Denison mine) has supplied (June 1967) the following classification and description of the oligomictic conglomerate reefs known to occur on the Denison property.

The "A" Zone is the upper reef of the main Denison orebody with a relative stratigraphic location of 210 feet below argillite. This reef varies in thickness from 6 feet to 12 feet with an average thickness of 8 feet.

The "B" Zone is the lower reef of the main Denison orebody with a relative stratigraphic location of 220 feet below argillite. This reef varies in thickness from 4 feet to 10 feet with an average thickness of 8 feet. With the exception of a local basal lower member of this reef, with a thickness of up to 3 feet and separated by about 2 feet of quartzite, no other conglomerate beds have been intersected to basement. The basement is located from 0 to 180 feet below this reef.

The "C" Zone is believed to be the down-dip continuation of the Algom-Quirke reef with a relative stratigraphic location of 95 feet below argillite. This reef varies in thickness from 5 feet to 8 feet with an average thickness of 6 feet.

The "D" Zone is the conglomerate bed with a relative stratigraphic location of 50 feet below argillite. This reef varies in thickness from 4 feet to 9 feet with an average thickness of 6 feet.

The "E" Zone is the conglomerate bed with a relative stratigraphic location of 70 feet below argillite. This reef varies in thickness from 5 feet to 9 feet with an average thickness of 7 feet.

Production: See Table 1.

Reserves: In the 1964 annual report of the company it is stated that reserves after completion of contract obligations (this excludes the Gunnar contract obtained June 1964) contain at least 300,000,000 pounds of uranium mineable at prices as low as $4.00 per pound.

References: Robertson, J.A., 1968: ODM, G.R. (in press), Griffith, J.W., 1967, p. 102-124.
Files: SSM 373, SSM 1040, 63A.206,

Annual Reports: Consolidated Denison Mines Ltd.
Denison Mines Ltd.

Rio Algom Mines Ltd. (Quirke Mine)

Location: The property extends from the north shore of Dunlop Lake in Township 156 to central Quirke Lake in Township 144. The eastern part of the property was partly mined from the Panel mine.

Development: The discovery locality was trenched and sampled in 1953. An extensive diamond-drilling program begun in 1953 involved 87,548 feet in 203 holes drilled at 200-foot intervals. A 5-compartment shaft was completed to 864 feet in 1956. A 3,000-ton mill was built at the same time and production began in September 1956.

In 1960 a second shaft, was started. On the formation of Rio Algom Mines Limited, shaft-sinking was stopped in January 1961.

Geology: D. Sprague (Geologist, Rio Tinto Canadian Exploration Ltd.) has informed the author that the following nomenclature is now (June 1967) in use by Rio Algom Mines Ltd. for the Quirke Mine area:

1.	Upper reef	8-12 feet above A-reef.
2.	"A" reef	the ore-bed at Quirke No. 1.
3.	"B" reef	average 13 feet below A-reef.
4.	"C-L" reef	8-20 feet above C-reef.
5.	"C" reef	Denison reef about 100 feet below A.

Production: See Table 1.

Reserves:

Proven:	474,000 tons	2.42 lbs. U_3O_8/ton.
Probable:	424,000 tons	2.34 lbs. U_3O_8/ton.
Possible:	21,613,000 tons	2.86 lbs. U_3O_8/ton.

(from Rio Algom Prospectus, 1966).

References: Robertson, J.A., 1968: ODM, G.R. (in press).
Griffith, J.W., 1967, p. 168-173.
Annual Reports: Algom Uranium Mines Ltd., Rio Algom Mines Ltd.
Files: SSM 701, SSM 719.

Rio Algom Mines Ltd. (Spanish American Mine)

Location: South shore Quirke Lake, Township 150.

Ownership: Kinloch Mines Ltd.,

Spanish American Mines Ltd. merged into Northspan Uranium Mines Ltd. which in turn was merged in 1960 into Rio Algom Mines Ltd.

Geology: The property is bounded on its north by the Denison property and on its east by Stanrock. Stanrock has mined to the common boundary. The property lies on the north limb of the Quirke syncline and, except for a narrow strip along the shore of Quirke Lake in the vicinity of the surface plant, is entirely underlain by sparse conglomerates and feldspathic quartzites of the Gowganda Formation. Just south of the shore a northwest-striking linear partly filled with diabase is the surface expression of the Spanish American fault. The ore zone is repeated in the mine workings by a thrust fault (the Quirke thrust) which strikes N81°W dipping 17° to 23°S with slip of about 800 feet. The ore is also cut by the steeply dipping Spanish American fault.

Development: Diamond-drilling by Kinloch Mining Company and further drilling by Spanish American Mines Limited led in 1957 to the establishment of reserves of 6,251,726 tons with average grade of 0.097 percent U_3O_8. This was contained in one bed up to 20 feet thick of which an average 10 feet was ore-grade. The strike is N70°W dipping 17°S. Continuity with the Denison or C reef is suspected but not proven. Two shafts were sunk, No. 1, three-compartment to 3,476 feet, No. 2 three-compartment to 3,250 feet. A 2,000 ton mill was constructed and the first shipment of precipitate was made in May 1958. The mine was closed in February 1959.

Production and Ore Reserves: In 1958, according to the Northspan Uranium Mines Limited annual report, 76,402 tons were obtained from stopes at Spanish American, and the remainder from haulageways and other development within the ore zone. At year-end, reserves were estimated at 5,735,000 tons grading 1.94 percent U_3O_8 (allowing 10 percent dilution with barren material).

Production in 1959 was 42,341 tons.

References: Robertson, J.A., 1968: ODM, G.R., (in press).
Files: SSM 542, SSM 552.
Annual Reports: Northspan Uranium Mines Ltd.
Rio Algom Mines Ltd.

TOWNSHIP 155

Caribou Lake Area

Location: Southeast of Caribou Lake, west central Township 155.

Ownership: Gui-Por Uranium Mines and Metals Ltd. 1954-1955, optioned to New Jersey Zinc Exploration Company (Canada) Ltd.

Development: New Jersey Zinc carried out geological and geophysical surveys and 13 holes were drilled of which 12 were completed to basement. Rio Tinto Canadian Exploration Ltd. carried out further surface exploration.

Years of Activity: 1954-1955.

Geology: Lower Mississagi arkose lies unconformably on Archean granite. Only thin lenses of slightly radioactive conglomerate are present.

Dinensions and Grade: 3 drill holes near Caribou Lake cut oligomictic pebble bands with assays ranging from 0.02% U_3O_8-0.043% U_3O_8. Pebble bands or lenses cut in other holes had only traces of U_3O_8 or ThO_2.

References: ODM, G.R. 13, 1963, p. 65.
Files: SSM 393; SSM 399.

TOWNSHIP 156

Candore Explorations Ltd.

Location: Ten Mile Lake (northwest arm), Dunlop Lake.

Ownership: 1953, Pitchgoma Mines Ltd. 1955, Detta Minerals Ltd. renamed 1956 Candore Explorations Ltd. 1966, Optioned to Denison Mines Ltd.

Development: Geological, radiometric surveys.
Pitchgoma: 17 drillholes.
Detta: One deep hole stopped near top of Middle Mississagi Formation.
Denison: 3 drillholes; No. 1, stopped at 672 feet; No. 2, drilled to basement and stopped at 1,782 feet; No. 3, drilled to basement and stopped at 2,574 feet.

Years of Activity: 1953-1955, 1966-1967.

Geology: Upper Mississagi Formation overlies a few feet of Middle Mississagi Formation which rests unconformably on Algoman granite and Keewatin greenstone. The Lower Mississagi does not outcrop as it is cut out by overlap. No Lower Mississagi Formation was found in the deep holes. The Upper Mississagi Formation comprises arkose with interbeds and lenses of slightly Ra pebble conglomerate.

Dimensions and Grade: Thin oligomictic pebble bands in Upper Mississagi. These are normally less than 6 inches in thickness and contain less than 0.02% U_3O_8. The best assay obtained was 0.043% U_3O_8/1 foot.

References: ODM Map 2108:
Robertson, J.A., 1963: ODM, G.R. 13, p. 60-61, with Map 2015.
Files: SSM 412; SSM 1040.

Consolidated Callinan Flin-Flon Mines Ltd.

Location: Dollyberry-Gibbery lakes, Townships 156 and 157.

Development: Staked 1954. Geological and radioactivity surveys. Diamond drilling: 5 holes, totalling 2,000 feet in 1955, and 1 hole 50 feet in 1957.

Geology: Upper Mississagi Formation overlies a few feet of Middle Mississagi Formation resting unconformably on Algoman granite and Keewatin greenstone. The Lower Mississagi Formation is cut out by overlap. The Upper Mississagi comprises arkose with interbeds and lenses of slightly radioactive pebble conglomerate.

Dimensions and Grade: Strike length of 6,200 feet with geiger readings suggesting 0.02-0.05% U_3O_8 (RE). Higher readings over a 350-foot length.

References: ODM Map 2108:
Robertson, J.A., 1963: ODM, G.R. 13, p. 61, with Map 2014.
Files: SSM 406)
63A.239)

Rio Algom Mines Ltd.

Anglo Rouyn and Armistice Groups

Location: Ten Mile Lake, north central Township 156.

Ownership: Panel Consolidated Uranium Mines Ltd. In 1956 merged into Northspan Uranium Mines Ltd., and property transferred to Span-North Mining Claims Ltd. In 1960 merged into Rio Algom Mines Ltd.

Development: Panel: Geological and geophysical exploration.
9 drill-holes: a) 6 NE arm, Ten Mile Lake.
b) 3 S of E end, NE arm Ten Mile Lake.
Span-North: 1 deep hole and 4 shallow holes.

Years of Activity: 1953-1958.

Geology: Upper Mississagi Formation overlies a few feet of Middle Mississagi Formation, which lies unconformably on Algoman granite and Keewatin greenstone. The Lower Mississagi does not outcrop being cut out by overlap. The Upper Mississagi Formation is arkosic with interbeds and lenses of slightly Ra pebble conglomerate.

Dimensions and Grade: Panel drilling group b: scattered pebble bands 0.025-0.042% U_3O_8. Other drilling - nothing of economic interest.

References: ODM Map 2108:
Robertson, J.A., 1963: ODM, G.R. 13, p. 75-77 with Map 2015.
Files: SSM 410; SSM 411.

TOWNSHIP 161

Anabar Mining and Development Co. Ltd.

Location: Butterfield Narrows, Lake Matinenda, Township 161.

Development: 1955: drilling, 14 holes; geological mapping.

Geology: Lower Mississagi arkose lies unconformably on Algoman granite.

Dimensions and Grade: The drilling intersected thin pyritized radioactive conglomerate from 0.4 to 3.5 feet thick; best assay: 0.05% U_3O_8/0.4 feet.

References: Robertson, J.A., 1963: ODM, G.R. 13, p. 55-56 with Map 2026.
Files: SSM 423.

Buffana Uranium Mines Ltd.

Location: North end of Little Moon Lake, Township 161.

Ownership: 1953: Rochester and Pittsburg Coal Company.
Buffana Uranium Mines Ltd.

Development: Geological mapping. Seven drill holes totalling 4,807 feet.

Geology: Lower Mississagi arkose lies unconformably on Algoman granite and Keewatin greenstone. Drill holes intersected basement at depth of 460-1,025 feet. The sedimentary rocks strike E-W and have a flat north dip.

Dimensions and Grade: Only thin intersections of slightly radioactive pyritic quartz-pebble conglomerate; best assay: 0.054% U_3O_8/2.5 feet.

References: Robertson, J.A., 1963: ODM, G.R. 13, p. 59-60 with Map 2026.
Files: SSM 431.

Dominion Uranium Corporation Ltd.

Location: Graveyard Island, Bakers Bay, Matinenda Lake, Township 161.

Development: Geological mapping, 20 drill holes:
Nos. 1-14; S shore of Bakers Bay.
Nos. 15-20; W of Bakers Bay; terminated in diabase.

Years of Activity: 1954-1955.

Geology: South of Bakers Bay Lower Mississagi arkose and quartzite lie unconformably on Algoman granite.

Dimensions and Grade: Holes 1-14 intersected thin pyritic pebble bands; best assay: 0.025% U_3O_8/2 feet.

References: Robertson, J.A., 1963: ODM, G.R. 13, p. 62-63 with Map 2026.
Files: SSM 426.

Martin Property

Location: Moon Lake-Bakers Bay, Matinenda Lake, Township 161.

Development: Two diamond drill holes: 590 feet; 521 feet (1955).

Geology: Lower Mississagi arkose and quartzite lie unconformably on Algoman granite.

Dimensions and Grade: Scattered thin radioactive conglomerate with sulphide. Best intersection: 0.034% U_3O_8, 0.068% ThO_2/1 foot.

References: Robertson, J.A., 1963: ODM, G.R. 13, p. 68-69, with Map 2026.
Files: SSM 427.

Pistol Lake Occurrence

Location: Township 161 to north of Pistol Lake, Mack township.

Development: Staked in 1953 on the basis of surface radioactivity. Geological and geophysical surveys.
13 drill holes were put down by Algom Uranium Mines Ltd.

Years of Activity: 1953-1958.

Geology: Lower Mississagi arkose unconformably overlies Algoman granitic rocks.

Dinensions and Grade: Only traces of oligomictic conglomerate with minor pyrite and radioactivity up to 2½ x Bg. Best assay submitted 0.04 lbs. U_3O_8/ton across 1 foot.

References: Robertson, J.A., 1963: ODM, G.R. 13, p. 54 with Map 2026.
Files: SSM 422; SSM 718; SSM 719.

DISTRICT OF ALGOMA

Miscellaneous Occurrences

Name	Location	Reference
Alur Mines Ltd.	Gaudette township	Lang et al, 1962, p. 261
Kerr Addison Mines Ltd. (Cooper Lake Property)	Haughton-Otter townships	ODM Files, SSM 1010
Desbarats Lake occurrence	North shore of Desbarats Lake, Johnson township	ODM Map 2108
H.D. Sutherland occurrence	Lot 5, Con. II, Morin township	Files SSM, ODM Map 2108
Denvic Lake Area	Denvic Lake, Shedden township	Lang et al, 1962, p. 277
MacLean-Gimby occurrence	Shields township	Lang et al, 1962 p. 278
New Kelore Mines Ltd.	North shore of Lauzon Lake, east-central Striker township	ODM file, 63-582
H.D. Peterson property	3 miles northeast of Thessalon	ODM Map 2108
Pitch-Ore Uranium Mines Ltd.	South shore Wolf Lake,Tupper-Shields twps.	Files SSM
Blind River Uranium Mines Ltd.	Sugar Lake Area, Victoria township	Files SSM (63A-234)
Towle-Humpage Group	Tube-Denvic lakes, Victoria township	Files SSM (63A-235)
Victoria Algoma Minerals, Ltd. (Truss-Wassau Group)	Suger Lake, Victoria township	Lang et al, 1962, p. 283

Name	Location	Reference
Russian Lake Area	Russian Lake, Township J	ODM P.R. 1952-2
Rawhide Lake Area	Township U	Files SSM 202, 203, 71
Harvard Uranium Mines Ltd.	Township 1A, south-central	Files SSM 206
Kirkpatrick Lake Area	North half of Township 1C	Files SSM 215 and 216
M.C. Gardiner occurrence	SW corner of Ranger Lake, Township 3H	Lang et al, 1962, p. 282
E.B. James occurrence	Township 4E	Lang et al, 1962, p. 283
Aubinadong occurrence	East end of Ranger Lake, Township 4G	File SSM 1063
Ranger Lake Uranium Co., Ltd.	Ranger Lake-Saymo Lake Area, Townships 4G, 5G	File SSM 228
J.E. Gimby occurrence	SW corner, Township 25, Range 16	Lang et al, 1962, p. 279
Huclif Porcupine Mines, Ltd. (Mile 99, A. C. Railway)	Township 27, Range 16	File SSM 243 (63-587)
Fausten Exploration Ltd.	Townships 28, 29, Range 14	Lang et al, 1962, p. 280
Ranrouyn Mines Ltd.	Township 28, Range 14	ODM File 63-215
Huclif Porcupine Gold Mines Ltd.	Township 28, Range 16	File SSM 243 (63-587)
Jalore Mining Co., Ltd.	S of Mile 105, A.C. R. Township 28, Range 16	File SSM 263

Name	Location	Reference
Joubin occurrence	Township 28, Range 16	Lang et al, 1962, p. 280
Sapaska Mines Ltd.	Township 28, Range 16	File SSM 264 (63A-76)
McCombe Syndicate	Township 28, Range 16	File SSM 265 (63A-97)
E.D. Tooker occurrence	Township 28, Range 16	Lang et al, 1962, p. 279
R.B. Phillips occurrence	Township 28, Range 17	Lang et al, 1962, p. 280
Lapaska Mines, Ltd.	Township 29, Range 14	File SSM 264 (63A-76)
Manwood Mining Corp.	Township 29, Range 14 and Kincaid twp.	File SSM (63A-80)
Mosher-Boyles occurrence	Township 29, Range 14	Lang et al, 1962, p. 280
Van Loon Prospecting Syndicate	Township 29, Range 15	ODM File 63-213
T. Surlaga occurrence	Township 29, Range 23	Lang et al, 1962, p. 281
Madawanson Lake occurrence	Township 125	ODM P.R. 1952-2
Moon Lake Uranium Mines Ltd.	Township 155	File SSM 398, 399
Peerless Uranium Mining Corp., Ltd.	Township 155	ODM G.R. 13, p. 72
Rio Algom Mines (Nordic Group West)	Township 155	Files SSM 390, 391, 718, 719
Rio Algom Mines (Dunlop-Ten Mile Lakes)	East side of Township 156	Files SSM 391, 719
Boymar Gold Mines Ltd.	Township 157	File SSM 418

Name	Location	Reference
Zenmac Metal Mines Ltd.	Township 157	File SSM 421
Anuwon Uranium Mines Ltd.	Township 161	File SSM 424
Big Game Mines Ltd.	Southeast of Township 161	Files SSM 393, 399
Fano Mining and Exploration Ltd.	Township 161	File SSM 447
Moneta Porcupine Option	Township 161	File SSM 432 (63-466)
Picton Uranium Mines Ltd.	Township 161	File SSM 455, 429
Zenmac Metal Mines Ltd.	Township 161	Files SSM 433, 435
Gods Lake Gold Mines (Astonish Option)	Township 163	File SSM 440
Fano Mining and Exploration, Ltd.	Township 167	OSM G.R. 13, p. 63
Matinenda Uranium Mines, Ltd.	Township 167	Files SSM
Sheba Mines Ltd.	Township 175	Files SSM 464

DISTRICT OF COCHRANE

PITT TOWNSHIP

Mosher Showing, Abitibi River

Location: Otter Rapids, Abitibi River, Pitt township, near mileage 91.7 on Ontario Northland Railway.

Ownership: Discovered and staked by A. Mosher of Calmor Mines Ltd., 1947 and transferred to Moneta Porcupine Mines Ltd.

Radioactive Minerals Present: Pitchblende (?), monazite.

Development: Surface exploration and sampling (1947-48).

Geology: Veins of carbonate, quartz, and hematite occur in Precambrian gneiss, which is intruded by granite and pegmatite.

Dimensions and Grade: The main vein is about a foot wide and exposed at intervals for 234 feet. Seven samples showed 0.004 RE, 0.025 RE, 0.031 RE, 0.053 RE, 0.056 RE, 0.063 RE and 0.130 RE. Three samples taken by ODM showed similar values.

References: Lang et al; 1962, p. 276.
ODM Map P. 370.
ODM, P.R. 1948-7.
Northern Miner: May 20, 1948; Oct. 28, 1948.

Remarks: Area has been flooded by Ontario Hydro.

DISTRICT OF COCHRANE

Miscellaneous Occurrences

Name	Location	Reference
Little and Big Soweska River occurrences	Habel township	Files, Resident Geologist, Timmins
Coal Creek occurrence	McBrien township	Files, Resident Geologist, Timmins
M.A. Provencher occurrence	Con. X, Shackleton twp.	Lang et al, 1962, p. 277

DISTRICT OF KENORA

BRIDGES TOWNSHIP

Coulee Lead and Zinc Mines Ltd.

Location: Game Lake area, 40 miles east of Kenora, and one mile north of Highway 17, Bridges township.

Development: 40 claim block staked October, 1967 and adjacent blocks held by associated companies. Aerial radioactivity survey, followed by ground prospecting and trenching.

Dimensions and Grade: The aerial survey indicated a radiometric anomaly a half mile long and an eighth mile wide. Initial prospecting was concentrated on an area about 400 feet by 150 feet and the following samples have been obtained from trenches and pits on the surface showing:

"First samples were taken from a 35-ft. long trench on the base line. Values obtained are: 3.4 lbs., 2.6 lbs. and 1.8 lbs. U_3O_8 per ton. Most of the trenches and pits were about 5 ft. long by 4 ft. wide and about 3-4 ft. in depth", states Mr. McDonough, Company President.

Other samples taken from trenches No. 1 to No. 10 range from 0.4 to 8.4 lbs. U_3O_8 per ton.

References: ODM, P.R. 1950-1.
Northern Miner: 19 Oct.; 26 Oct., 1967.

Headway Red Lake Gold Mines Ltd.

Location: Game Lake area, 40 miles east of Kenora and one mile north of Highway 17. The property is bounded on the east by property owned by Coulee Lead and Zinc Mines Ltd.

Dimensions and Grade: The block covers two showings from which two grab samples assayed 4.1 lbs. U_3O_8/ton but no detailed exploration has been carried out. (Northern Miner, Oct. 26, 1967).

References: ODM: P.R. 1950-1:
Northern Miner: 19 Oct.; 26 Oct. 1967.

LANGTON TOWNSHIP

M. Jensen Occurrence

Location: Lot 9, concession IV, Langton township, 56 miles east of Kenora.

Development: Surface exploration, one drill hole, 30 feet (1949).

Geology: Two lenses of gneissic pegmatitic granite, 3 and 5 feet wide, and about 50 feet long.

Dimensions and Grade: Radioactivity up to 9 x Bg. has been recorded but it is generally much lower. A sample taken in 1949 contained 0.71% U_3O_8. 28 samples taken by W. E. Hale averaged 0.015% U_3O_8 (RE). Two sections of core each 1.2 feet long showed 0.088% (RE) and 0.050% (RE) (Lang, 1951).

References: ODM Map P. 242.
Lang, 1951: GSC Paper 51-10, Canadian Deposits of Uranium and Thorium, p. 108.
Lang et al, 1962: p. 265.

MacNICOL TOWNSHIP

Byberg Property or Hawk Lake Showing

Location: Hawk Lake, 29¾ miles east of Kenora, MacNicol and Jackman townships.

Ownership: Byberg Property was discovered before 1950. It was staked by Campbell and MacFarlane and optioned to Great Lakes Uranium Corp.

Radioactive Minerals Present: Uraninite, thorite, and secondary minerals.

Development: Trenching.

Geology: Radioactive pegmatite dikes cut hornblende schist probably derived from a metavolcanic rock.

Dimensions and Grade: The uranium is concentrated in magnetite rich zones in an irregular mass of pegmatite; the outcrop is wedge-shaped (apex to the south) with a maximum width of 50-70 feet and a length of 150 feet. None of the zones is more than 5 feet wide or 30 feet long. Of seven assays, 3 contained no U_3O_8; the others ranged from 0.10% to 0.23% U_3O_8.

References: ODM, Geol. Circ. No. 1, 1955,
ODM, P.R. 1950-1,
Lang, 1952; p. 117-118.
Files: K-118.

New Campbell Island Mines Ltd.

Location: Richard, Bruin, and Willard lakes; 32 miles east of Kenora, MacNicol township.

Ownership: 1954 staked by Colin Campbell and Frank MacFarlane, optioned, and then sold to Campbell Island Mines and Explorations Ltd. 1958 company name changed.

Radioactive Minerals Present: Uraninite, uranothorite, allanite, beta-uranotile.

Development: 8 trenches; 15 holes over a strike length of 1,300 feet totalling 5,000 feet. Two adits were driven; one 46 feet below, and the other 106 feet below the top of a hill and 1,100 feet of lateral workings; from these adits explored the potential ore-zone.

Geology: The country rock is granite with some remnants of volcanics and sediments. The uranium mineralization is confined to red leucopegmatites which have tabular form, strike east-west, dip very steeply to the north, and are up to 30 feet wide.

Dimensions and Grade: A.S. Bayne & Co., consultants, estimated the reserves at 650,000 tons grading 0.10% U_3O_8 across 10 feet for a length of 700 feet and a depth of 1,000 feet.

References: ODM, Geol. Circ., No. 1, 1955.
Files: K-117.
Lang et al, 1962; p. 267.

TUSTIN TOWNSHIP

Parth Property

Location: Tustin-Bridges townships, 45 miles east of Kenora.

Geology: Pegmatite lenses occur in granitic rocks.

Dinensions and Grade: Main showing consists of a pegmatite lens that averages 8 feet in width. Radioactivity of up to 5 x Bg. was obtained over 6 square feet but elsewhere was only 2-3 x Bg. One assay showed 0.13% U_3O_8 (RE).

References: Lang, A.H., 1951: Canadian deposits of uranium and thorium.
ODM Map P. 242.

WABIGOON TOWNSHIP

Quibell Occurrence

Location: 1 mile west of Quibell, lot 12, concession V, Wabigoon township.

Ownership: J.P. Meehan.

Geology: Granite and gneiss are cut by grey pegmatite.

Dimensions and Grade: 0.05-0.10% U_3O_8 (RE).

References: Lang et al, 1962, p. 276.
ODM, P.R. 1950-1.

CAM Mines Ltd.

Location: Bearhead Lake, Favourable Lake area, 120 miles north of Red Lake and 60 miles east of Manitoba - Ontario boundary, District of Kenora (Patricia Portion).

Ownership: Discovered and staked, 1954. Sigasco Explorations Ltd., allowed to lapse. Restaked 1966 by CAM Mines Ltd.

Radioactive Minerals Present: Uraninite, zircon.

Development: 1955-1956: Surface mapping, radiometric surveys, stripping, trenching and 9 holes totalling 2,000 feet.
1957: 5 holes totalling 1,562 feet by New Dickenson Mines Ltd.
1967: Trenching, drilling, 9 holes completed by September 1967 and programme contining.

Geology: The southern part of the property comprises biotite granite gneiss and the northern part a migmatite-granite gneiss-pegmatite complex. The radioactive zones occur as biotite-rich pegmatite or gneiss lenses along the contact of these rocks which strikes N65-70°W. Some zones are marked by "yellow uranium staining".

Dimensions and Grade: Sigasco had outlined 6 showings. In drill holes assays ranged from 0.010-0.14% U_3O_8 and in the trenches assays ranged from 0.001% U_3O_8 to 0.20% U_3O_8. One trench gave 1.5 lbs. U_3O_8/46 feet. CAM Mines Ltd. have re-explored the original showings and have discovered a number of new showings. Results from their work (to Oct. 1967) show varying amounts of uranium from surface trenches and drill holes.

References: Files: Kenora, Resident Geologist's office.
Northern Miner: July 1967-Nov. 1967.

Remarks: Drilling programme is being continued (Nov. 1967).

Cameron - Alcock Occurrence

Location: 2 miles east of the south end of Vermilion Lake and 15 miles north of Kenora.

Radioactive Minerals Present: Uraninite, monazite.

Development: Surface exploration and pitting.

Geology: Radioactivity occurs in particles in a granite dike which intrudes remnants of lava altered by injection of granite and pegmatite along the schistosity.

Dinensions and Grade: A 9-foot dike is exposed for 30 feet; radioactivity up to 8 x Bg. was recorded over most biotite-rich sections.
Assays obtained: 0.05% U_3O_8 (RE) - 0.29% U_3O_8 (RE) and one assay 0.14% U_3O_8 (Chem.).

References: Lang et al, 1962: p. 251.
ODM, P.R. 1950-1.

Oak Lake Occurrence

Location: Midway between Kenora and Red Lake, on Mining Division boundary, District of Kenora (Patricia Portion).

Ownership: M. Mahoney and F. and K. Kozur.

Radioactive Minerals Present: Monazite, uraninite.

Development: Diamond drilling.

Geology: Pegmatite.

Reference: Lang et al, 1962, p. 275.

DISTRICT OF KENORA

Miscellaneous Occurrences

Name	Location	Reference
A.L. Wilson occurrence	Bridges township	Lang et al, 1962, p. 249
McLeod occurrence	Langton township	Files, K-52
Ascot Metals Corporation, Ltd.	MacNicol township	Files, K-118
Kenoratomic Mines, Ltd.	Richard Lake, MacNicol twp.	Files, K-118 (63-916)
H.W. Hawes occurrence	Game Lake, Tustin twp.	Lang et al, 1962, p. 283
Tustin Mines, Ltd.	Bee Lake, Tustin twp.	Files, K-117 (63-923)
Aerobus Lake occurrence	35 miles north of Vermilion Bay	Files, K-1
McCombe Mining and Exploration, Ltd.	Bamaji Lake, 90 miles north of Sioux Lookout	Lang et al, 1962, p. 248
Pancer occurrence	Oneman Lake, 24 miles north of Minaki	Files, K-68
W.A. Pierce occurrence	Botsford Lake, near Rosnel	Lang et al, 1962, p. 249
J.D. Pirson occurrence	Medicinestone Lake, 15-20 miles south of Red Lake	Lang et al, 1962, p. 269
Vermilion Lake occurrence	North of Kenora	Lang et al, 1962, p. 283
Wolf Island occurrence	Wolf Island, Lake of the Woods	ODM PR. 1950-1

DISTRICT OF NIPISSING

PARDO TOWNSHIP

Pickle Crow Gold Mines Ltd.

Location: Tee - Silver lakes area, 22 miles north of River Valley.

Development: Surface mapping: 16 drill holes; 7,489 feet in 1957, and 3,393 feet in 1956.

Geology: A broad syncline strikes N20°E and plunges 5°SW. The flanks dip 30°. The lowest member present is the Mississagi Formation and this is 2-3,000 feet thick and unconformably overlain by the Gowganda Formation. The basal bed is a weakly radioactive pyritic conglomerate 2-28 feet thick which lies unconformably on basement greenstone and sediments.

Dimensions and Grade: The best assays in 1956 were less than 0.028% U_3O_8. In holes 1-9 of the 1957 drilling assays were generally in the range of 0.002-0.008% U_3O_8/16.3 feet, but one hole gave 0.017% U_3O_8/2 feet.

References: ODM, G.R. 1, 1960, p. 33-34, with Charts A and H.
ODM Map p. 367.
Files: S63.333.

VOGT TOWNSHIP

Aubay Uranium Mines Ltd.

Location: South end of Lake Timagami, Vogt township.

Ownership: 1955: Aubay Uranium Mines Ltd.
1958: Optioned to Prosco Ltd. but option dropped.

Development: Surface exploration and mapping; drilling: 5 holes by Aubay and 5 holes by Prosco. Discovery of radioactivity was made on gold showing on adjacent ground owned by Krefield Graphite Gold Mines Ltd.

Geology: Maximum thickness intersected was 27 feet of conglomeratic Mississagi Formation resting unconformably on

Keewatin-type metavolcanics and iron formation. The Mississagi Formation is overlain unconformably by the Gowganda Formation which 1,000 feet to the north lies on basement.

Dimensions and Grade: The following assays were obtained:
Aubay No. 4: 0.30 oz. Au/ton, 0.038% U_3O_8/3 feet.
Aubay No. 5: 0.40 oz. Au/ton, 0.052% U_3O_8/2 feet.
Prosco Wedge No. 5: 0.06 oz. Au/ton.
Prosco best assay: 0.08 oz. Au/ton, 0.025% U_3O_8.

References: ODM, G.R. 1, 1960, p. 36-37 with Charts A and K.
ODM, G.R. 22, 1964, p. 20-21, with Map 2048.

DISTRICT OF NIPISSING

Miscellaneous Occurrences

Name	Location	Reference
J.P. Neil occurrence	East end of Lake Timagami	Lang et al, 1962 p. 279
D'Eldona Gold Mines Ltd.	South arm of Lake Timagami, Vogt twp.	ODM, G.R. 22, 1964
Krefield Graphite Gold Mines Ltd.	South end of Lake Timagami, Vogt twp.	ODM, G.R. 1, 1960, p. 36-37

DISTRICT OF RAINY RIVER

MAINVILLE LAKE AREA

Rainy Lake Mining Ltd.

Location: Otter Bay, Mainville Lake.

Ownership: Discovered by E. Corrigan.
1955: Pioneer Consultants Ltd.
1956: Rainy Lake Mining Ltd.

Radioactive Minerals Present: Uraninite, uranothorite, allanite.

Development: 1,170 feet of drilling (1955).

Geology: Granite pegmatite dikes are intrusive into biotite-rich granite gneiss. These dikes may parallel or crosscut the foliation, and are lens-like and discontinuous. They range in width from 2 inches to 250 feet.

Dimensions and Grade: Fractures in the dikes are oxidized and carry white and yellow oxides. Molybdenite is also present. A grab sample gave 0.45% U_3O_8.

References: ODM, Industrial Mineral Report 21, 1967, p. 55.
Files: Resident Geologist's office, Port Arthur.

DISTRICT OF SUDBURY

BALDWIN TOWNSHIP

Broulan Reef Mines Ltd.

Location: Agnew Lake area, Baldwin, Dunlop, Porter and Shakespeare townships; total of 290 claims.

Development: Acquired ground in Oct. 1966 and carried out geological, geophysical surveys, diamond drilling: 14 holes were completed by March 1967, trenching.

Geology: Lower member of Lower Mississagi Formation comprises interbedded pyritic quartz pebble conglomerates and quartzites.

Dimensions and Grade: The favourable zone has been traced intermittently for 3,000 feet.
The following intersections were obtained in 1966-1967.

Drilling Hole No.	Ra intersections feet	U_3O_8 lbs./ton	Core length feet
1	42-66.7	0.9	5.8 feet
	77.4-89.6	1.0	2.8 feet
2	43-149.5	1.0	4.0 feet
		2.1	6.2 feet
3	34-36	1.0	2.0 feet
	73.6-87.5	1.6 and	1.9 feet
		1.6 lbs. ThO_2/ton	

Drilling Hole No.	Ra intersections feet	U_3O_8 lbs./ton	Core length feet
3 (cont.)	243-315	1.2	2.2 feet
6		2.2	4.0 feet
7		2.5	8.6 feet
8		2.4	8.3 feet

This drilling indicated two beds of radioactive conglomerate with the better values in the lower bed.
Trenching carried out in 1967 gave the following assays:
Trench No. 1: 9.8 lbs. U_3O_8 and 2.4 lbs. ThO_2/ton (Chem.) over 1.2 feet.
Trench No. 2: 14.2 lbs. U_3O_8 and 3.2 lbs. ThO_2/ton (Chem.) over 1.0 feet.
Trench No. 3: 5.6 lbs. U_3O_8 and 0.4 lbs. ThO_2/ton (R) over 1.6 feet.

References: ODM, Vol. LXI, 1952, pt. 4, p. 33, with Map 1952-1.
Files: S63-857; 63.2211.

Canadian Johns-Manville Co. Ltd.

Location: Lake of the Mountains Group, Baldwin township.

Ownership: 1966, property obtained from Lloyd Chandler.

Development: One deep drill hole, 2,378 feet and wedges for total of 2,926 feet.

Years of Activity: 1966-1967.

Dimensions and Grade: The following intersections were obtained:
0.77 lbs. U_3O_8/ton/2.3 feet at 1,880 feet.
0.56 lbs. U_3O_8/ton/1.0 feet at 1,940 feet.
0.47 lbs. U_3O_8/ton/4.0 feet at 2,051.5 feet.

References: ODM, Vol. LXI, 1952, pt. 4, with Map 1952-1.
Northern Miner: May 4, 1967.
ODM Files: Sudbury.

Consolidated Montclerg Mines Ltd.

Espanola Bay Occurrence

Location: Espanola Bay of Agnew Lake, 3 miles north of McKerrow; lots 4 and 5, concessions IV and V, Baldwin township.

Ownership and Development:
1916: Nichols Chemical Co., copper prospect.
1954: Plum Uranium Mines and Metal Mining Co. Ltd. (1957 merged into Consolidated Frederick Mines Ltd.); surface work, geophysical survey, diamond drilling. This work outlined a zone of quartz-pebble conglomerate averaging 2.25 feet in thickness but ranging from 1-9 feet, over a length of 600 feet and to a slope depth of 185 feet. Over a mining width of 5.0 feet grade was 0.92 lbs. U_3O_8/ton.
1954-1955: Jellicoe Mines (1939) Ltd. (now Jelex Mines Ltd.) carried out exploration on the S½ of lot 6, concession V and the N½ of lot 7, concession V. On the latter property trenching and diamond drilling (29 holes, totalling 6,445 feet) were carried out. Assays from rock trenches ranged from trace to 0.52% U_3O_8/ton over widths of 1.5 to 7 feet. Only one assay from core in assessment files 0.01 oz. Au, 1.01% Cu, 0.00% Ni, and .008% U_3O_8 (RE).
1960: Evenlode Mines Ltd; EM survey.
1966: Consolidated Montclerg Mines Ltd. 21 claims including 19 optioned from W.F. Atkins, Franc Joubin and staked 2 additional claims. A further drilling programme consisting of 6 holes was carried out. Four of these totalling 1,655 feet were on claim S.130917 and assays are available from these.
1967: Oct. 1967 the property was optioned to Denison Mines Ltd. and drilling resumed November, 1967.

Geology: The region is one of strongly deformed rocks lying between the Worthington and Fairbanks faults. A volcanic-sedimentary sequence of probable Archean age is overlain by Mississagi quartzites of Lower Huronian age. A bed of radioactive quartz-pebble conglomerate strikes N-S through the east part of lot 5, concession IV and has been followed for 1,600 feet. A second zone outcrops 600 feet west of the NW corner of the property and has been traced for 3,900 feet.

References: ODM, Vol. 61, 1952, pt. 4.
ODM, G.R. No. 1, 1960.

Files: Resident Geologist's office, Sudbury:
S63-19, S63-21, S63-28, S63-828, S63-829, S63-856, 63-435
and Prosco Project.

Dominion Gulf Company

Location: Baldwin Fire Tower, lot 3, concession V, Baldwin township.

Development: Geological, radiation, and magnetic surveys (1953-54).

Geology: A narrow radioactive quartzite band has been traced at intervals for about 2,000 feet.

Dimensions and Grade: Assays of 0.12% U_3O_8 (RE) and 0.04% U_3O_8 (Chem.) have been recorded.

References: ODM, Vol. LXI, 1952, pt. 4, with Map 1952-1.
ODM, G.R. 1, 1960, p. 26.
Files: S63-26); 63A.254.
63.512)

CHEWETT TOWNSHIP

Dominion Gulf Company

Nemegosenda Lake Property

Location: Nemegosenda Lake, 16 miles NE of Chapleau. Property mainly in Chewett township but extends into McGee, Pattinson, and Collins townships.

Radioactive Minerals Present: Monazite, pyrochlore (?).

Development: Geological, geophysical mapping, drilling. 580-foot adit on one zone.

Geology: Nemegosenda Lake carbonatite complex is 3-4 miles in diameter and has been explored primarily for niobium but possible by-products include uranium, thorium, and rare-earths. The country rocks are Archean gneisses and gabbro.

Dimensions and Grade: Radioactivity is in proportion to the niobium content and to development of calc-silicate minerals.

5 zones have been drilled: Zone D had 35 holes totalling 19,485 feet and the adit. Ore had been blocked out 600 by 800 feet to depth less than 600 feet. Reserves: 20,000,000 tons 0.47% Nb_2O_5; grades of U_3O_8 and ThO_2 not given.

Reference: Parsons, G.E., 1961: ODM, G.R. 3, with Map 2007.

CREELMAN TOWNSHIP

Leslie Prospect

Location: CNR Mile 18-20.5 N of Capreol: Lots 10-12, concessions II-IV, Creelman township.

Ownership: L. Leslie.
1954: Optioned to MacLeod Cockshutt Gold Mines Ltd.
1957: Optioned to Rio Tinto Canadian Exploration Ltd.,
1967: Optioned to Assembly Mines Ltd.

Radioactive Minerals Present: Uraninite.

Development:
1954: 14 drill holes totalling 3,591 feet.
1957: Detailed geological mapping.
1967: Diamond drilling.

Geology: Archean granite complex is overlain unconformably by Mississagi Formation comprising quartzite interbedded with argillite and pyritic quartz-pebble conglomerate. The sedimentary rocks strike N-S east of granite knob swinging to E-W on north side, and dip 30-40° away from granite. Radioactivity is associated with argillaceous rocks and conglomerates but is best developed in argillite.

Dimensions and Grade: No. 1 Showing: 18" argillite, 0.48% U_3O_8 and 0.05% ThO_2 (Chem.).
No. 2 Showing: 2-3 feet argillite, 0.08% U_3O_8 (RE).

References: ODM, G.R. 1, 1960, p. 30-31,
ODM Maps: P. 287, Cartier Sheet.
P. 367, Capreol Sheet.
Files: S63-70.

DRURY TOWNSHIP

Acme Oil and Gas Co. Ltd.

Location: Agnew Lake area.

Development: 1967: Trenched, 2 drill holes; 152 feet and 71 feet.

Geology: The Lower Mississagi Formation consists of quartz-pebble conglomerate and quartzite. In one hole basement was reached at 138 feet.

Dimensions and Grade: One trench gave 1.56 lbs. U_3O_8/ton over a length of 20 feet but other trenches gave lower values.

References: ODM, G.R. 34, 1965, p. 33-34 with Map 2055.
Northern Miner: Aug. 18, 1966; April 27, 1967.
Files: S63-854.

W. Alanen and E. Maki Occurrences

Location: W. Alanen claims: Lot 6, concessions IV and V, and lots 7, 8, concession IV, Drury township.
W. Alanen and E. Maki: Lots 7, 8, concession IV.

Radioactive Minerals Present: Monazite, thorianite, brannerite, uraninite.

Development: Pitting, diamond drilling: 12 short holes.

Geology: A band of greatly deformed Mississagi Formation extends across the properties and beds of radioactive rock have been found. On one large outcrop there are greatly deformed quartzite, argillite, arkose, and pebble conglomerate. The conglomerate beds are narrow and occur at a number of horizons and carry traces of pyrite. They are badly contorted and disrupted. Pre-Mississagi rocks are metavolcanics.

Dimensions and Grade: 2 test pits at discovery locality:
No. 1 Pit: 0.61% U_3O_8 (Chem.), 0.30% ThO_2 (Chem.);
0.38% U_3O_8 (Chem.), 0.10% ThO_2 (Chem.)/1.5 feet.
No. 2 Pit: 0.05% U_3O_8 (RE).
Several hundred feet west of the pits there is an outcrop of a 10-foot band of sheared conglomerate which is strongly

radioactive.

References: ODM, G.R. 1, 1960, p. 19-20, and Chart A.
ODM, G.R. 34, 1965, p. 33-34, with Map 2055.
Files: S63-117; S63-122.

Sagamore Exploration Ltd. and Alford Explorations Ltd.

Location: Lots 9-12, concessions IV and V, Drury township.

Ownership: Base metal and uranium occurrences were investigated by Sagamore Exploration Ltd. and later Alford Explorations Ltd. was formed to hold claims originally held by a number of individuals and organizations. In 1958 optioned to Cody-Reco Mines Ltd.

Radioactive Minerals Present: Monazite, thorianite, brannerite, uraninite.

Development: Surface exploration, scintillometer survey, and trenching in 1958. Exploration of copper showing.

Geology: A band of conglomerate, arkose, and quartzite of the Mississagi Formation extends across the property. This is bounded to the north by granite and both sedimentary rocks and granite are intruded by gabbro. The sedimentary rocks have been considerably deformed and are near vertical. A few radioactive pyritic quartz-pebble bands occur and these have not been traced for any distance. Beds are up to 20 feet wide but radioactivity highest in six-inch bands.

Dimensions and Grade:
A: 0.24% U_3O_8 and 0.30% ThO_2/2 feet.
B: 0.02% U_3O_8/20 feet.
C: 0.11% U_3O_8 and 0.05% ThO_2/10 feet.

References: ODM, G.R. 1, 1960, p. 21-22 and Chart A.
ODM, G.R. 34, 1965, p. 33-34.

ERMATINGER TOWNSHIP

Alcourt Mines Ltd.

Location: 3 miles west of Highway 544, lots 5-8, concessions V-VI, Ermatinger township.

Development: Surface exploration, 1 drill hole and later 4 drill holes totalling 1,000 feet (1957-59).

Geology: The area comprises a basin-shaped remnant of deformed Huronian sedimentary rocks lying unconformably on a granite basement complex. The Mississagi Formation consists of quartzite, arkose, with argillite partings and scattered thin interbedded pyritic quartz-pebble conglomerate. Radioactivity increases towards basement contact.

Dimensions and Grade: In trenches the following assays were obtained: 0.027%, 0.027%, 0.038%/U_3O_8. In the initial drill hole: 0.044% U_3O_8/1 foot, 0.042% U_3O_8/3.5 feet, 0.032% U_3O_8/2.0 feet.
In the later drill program all assays were less than above, and the property was allowed to lapse.

References: ODM, G.R. 1, 1960, p. 20-21,
Files: S63-138.

GRIGG TOWNSHIP

Canadian Johns-Manville Co. Ltd.

Location: East bank of Wanapitei River, a short distance north of the Grigg-Fraleck township boundary. The property consists of 583 claims and extends into Stobie and Fraleck townships.

Development: 1967, Surface mapping, trenching, airborne geophysical surveys.

Geology: The Mississagi Formation consists of quartzite, and near the base there are sparse pebbly horizons and argillaceous quartzites both of which are uraniferous.

References: ODM Map: P. 424, Fraleck township.
Northern Miner: May 4, May 11, 1967.

HARROW TOWNSHIP

V. Stencill Occurrence

Location: South shore of north arm of La Cloche Lake, lots 9 and 10, concession III, Harrow township.

Development: 4 drill holes totalling 421.2 feet (1954).

Geology: A radioactive dike with near vertical dip in Lorrain Quartzite.

Dimensions and Grade: The following assays were obtained from three holes: 0.04/5.2 feet, 0.06/5'6", 0.02/3 feet. The assessment file does not indicate whether these are expressed as % U_3O_8 or lbs. U_3O_8/ton.

Reference: Files: S63-193.

HUTTON TOWNSHIP

Assembly Mines Ltd.

Location: Lots 3-6, concessions III and IV, Hutton township.

Ownership: 1955: Fano Uranium Mines Ltd., name changed to Fano Mining and Exploration Ltd., claims dropped.
1967: Restaked, Assembly Mines Ltd.

Development: 1955-6: Geological and geophysical surveys, test pits, 3 drill holes totalling 2,463 feet.
1967: Four drill holes totalling 1,413.3 feet, none reached basement.

Geology: A band of radioactive pyritic pebble conglomerate at the base of the Mississagi Formation extends through the south part of concession IV and the north part of concession III and lies with great unconformity on a basement complex of granite gneiss, pegmatite, metavolcanic and metasedimentary rocks. Gabbro dikes and breccia also occur in all rocks. Radioactive pebble bands may occur up to 1,000 feet above the unconformity.

Dimensions and Grade: Assays from 9 samples ranged from 0.006-0.21% U_3O_8 and 3 of these gave nil to 0.15% ThO_2.

References: ODM, G.R. 1, 1960, p. 27-28 and Chart A.
ODM Maps: P. 287, P. 367, P. 399.
Files: S63-207, Sudbury - Assembly Mines Ltd.

Assembly Mines Ltd.

Doyon-Macleod-MacIntosh Group

Location: Lot 8, concession V, Hutton township, northwest of Milnet.

Ownership: 1955: Held by P. Doyon, E.C. Macleod, J.M. MacIntosh and associates.
1966: Assembly Mines Ltd.

Development: 1955: Trenching, 4 drill holes totalling 218 feet.
1966: 9 trenches and 4 drill holes.

Geology: Interbedded quartz-pebble conglomerate and quartzite unconformably overly granitic basement. These probably belong to the Mississagi Formation and are in turn overlain by Cobalt Group sedimentary rocks.

Dimensions and Grade: In 1955 the following assays were obtained: Surface - 0.03, 0.01% U_3O_8.
D.D.H. No. 1 - 0.04% U_3O_8/8 feet.
D.D.H. No. 2 - 0.08% U_3O_8/8 feet.
D.D.H. No. 3 - 0.07% U_3O_8/8 feet.

References: ODM, G.R. 1, 1960, p. 26 and Chart A.
ODM Maps: P.287, P.367, P.399.
Files: S63-210.

HYMAN TOWNSHIP

Agnew Lake Mines Ltd.

Location: Lots 5 and 6, concession V, Hyman township, about four miles north of east end of Agnew Lake.

Radioactive Minerals Present: Monazite, thorianite, uraninite, brannerite.

Ownership: 1954: New Thurbois Mines Ltd.
1956: Name changed to Canadian Thorium Corporation Ltd.
1961: Name changed to Quebec Mattagami Minerals Ltd.
1967: Agnew Lake Mines Ltd. was formed to develop the property. The new company is held 80% by Kerr Addison and

20% by Quebec Mattagami Minerals Ltd.

Development: 1954-1955: New Thurbois Mines Ltd.; surface work and 36,000 feet of diamond drilling outlined reserves of 750,000 tons grading 0.095% U_3O_8 and 0.3-0.35% ThO_2 contained in two zones (No. 2 and No. 3) of pyritic quartz-pebble conglomerate near the base of the Mississagi Formation. Ground away from the drilled zone was allowed to lapse but was restaked by Quebec Mattagami and Kerr Addison in 1965. In 1965 intensive exploration was resumed. By the end of 1966 reserves were estimated at No. 2 Bed: 800,000 tons of 1 lb. U_3O_8/ton. No. 3 Bed: 5,000,000 tons of 2 lbs. U_3O_8/ton. The indicated U_3O_8: ThO_2 was 2:5;recoverable yttrium oxide was also indicated (Kerr Addison Mines Ltd.; 1966 Annual report). Shaft sinking for a 3,000-foot shaft was begun and plans were announced for a 3,000 tons per day mill to be operational by 1971.

Geology: Heavy overburden covers much of the area and geological relationships have been hard to obtain. The radioactive conglomerate beds lie near the base of the Mississagi Formation and are interbedded with sericitic quartzite and argillite. These rocks unconformably overlie an Archean granite basement which is exposed to the north. The beds dip steeply south. Small mafic intrusives cut the Archean and Huronian rocks.

Reserves: Ore reserves (Northern Miner, Nov. 2, 1967) are as follows:

"Ore reserves are estimated at a total of 10,432,000 tons averaging 1.54 lbs. U_3O_8 per ton, or a total of 16,022,000 lbs. of uranium oxide. Average true width of the ore zones is taken at 9.2 feet. In addition, inferred tonnage is placed at another 1,500,000 tons.

Breakdown of ore reserves is shown as 3,365,000 tons averaging 2.25 lbs. U_3O_8 per ton; 2,411,000 tons averaging 1.41 lbs. per ton; and 4,656,000 tons averaging 1.08 lbs. U_3O_8 per ton."

References: ODM, G.R. 34, 1965, p. 33-34 with Map 2055.
ODM, G.R. 1, 1960, p. 22-23 and Chart C.
Files: S63-217: New Thurbois Mines Ltd.
E.C. Jacka (1967)) Resident Geologist's
R.O. Mactavish (1967)) office, Sudbury.
S63-751: Kerr Addison Mines Ltd.
Annual Report: Kerr Addison Mines Ltd.: 1966.

East Bay Gold Ltd.

Location: Agnew Lake area, Hyman township.

Development: Acquired Sept. 1966. 1967: Five drill holes 1,084 feet.

Geology: The property is underlain by sediments believed to be of Lower Mississagi age near the outcrop of the unconformity with the Archean granite basement. Drilling intersected an assemblage of conglomerate, quartz-pebble conglomerate, argillite and quartzite.

Dimensions and Grade: Hole No. 1: 0.03% U_3O_8 0.15% ThO_2 over 1.5 feet at 60.9 feet.
Hole No. 2: Tr. U_3O_8,Tr ThO_2 over 1.5 feet at 100.0 feet.
Hole No. 3: 0.43% U_3O_8,0.28% ThO_2 over 0.6 feet at 60.7 feet.
(ODM Files): 0.19% U_3O_8,1.00% ThO_2 over 0.2 feet at 66.0 feet.
Northern Miner: 1.08 lbs. U_3O_8/ton, 1.34 lbs. ThO_2/ton, 5.5 feet at 60.7 feet.
0.36 lbs. U_3O_8/ton, 1.16 lbs. ThO_2/ton, 3.7 feet at 75.8 feet.

Two surface showings 500 feet apart. West showing (No. 1 hole) and east showing (No. 3 hole).
West showing at surface: four beds varying in width from 3-15 inches, two of these were sampled and gave 2.0 lbs. U_3O_8/ton and 10.0 lbs. ThO_2/ton over 6 inches and 2.2 lbs. U_3O_8/ton and 14.6 lbs. ThO_2/ton over 3 inches.

References: ODM, G.R. 34, 1965, with Map 2055.
ODM Files: Sudbury, Resident Geologist's office.

Noranda Mines Ltd.

John Creek Bay Occurrence

Location: North shore of Agnew Lake; lots 9-10, concession II, Hyman township.

Radioactive Minerals Present: Pitchblende, monazite, thorianite, brannerite, uraninite.

Development: The property was staked in 1953, and was developed by surface work, diamond drilling and geiger surveys. Drilling consisted of 10 holes totalling 2,890 feet (1953-54).

Geology: The property is underlain by sedimentary rocks of the Mississagi Formation: conglomerate, quartzite, and greywacke intruded by diabase. The uranium - thorium mineralization is associated with interbeds of quartz-pebble conglomerate in quartzite. The area is strongly deformed and metamorphosed to the staurolite-garnet grade.

Dimensions and Grade: 8 Showings were found; the most important of which are the Ridge showings. The areas are characterized by steep dips and it is difficult to trace zones. Ra is also associated with the interbedded quartzites.
Ridge SW: 0.28% U_3O_8/2 feet for a length of 123 feet.
NE: 0.16% U_3O_8/2.1 feet for a length of 187 feet.
150 feet SE of Ridge NE: veinlets of pitchblende in sheared conglomerate.
Cabin: 0.11% U_3O_8/12 feet.
Island: Several showings up to 0.152% U_3O_8/8 feet.
Hilltop: 0.053-0.182% U_3O_8.
O.D.W.: 0.156% U_3O_8.

References: ODM, G.R. 1, 1960, p. 32-33 and Charts A and G.
ODM, G.R. 34, 1965, p. 33-34 with Map 2055.
Files: S63-218; 63-513.

LACKNER TOWNSHIP

Multi-Minerals Ltd.

Location: Lackner Lake, near Nemegos, 14 miles east of Chapleau.

Radioactive Minerals Present: Monazite, pyrochlore.

Development: Extensive exploration for niobium, possible by-products include phosphate, magnetite, thorium, and rare-earths.

Geology: Carbonatite complex.

References: ODM, G.R. 3, 1961, p. 51-69 and Map 2008.
ODM Files: Sudbury office on Lackner and McNaught townships.

MACLENNAN TOWNSHIP

Picton-Leclerc Property

Location: Lots 6-10, concessions 4, 5, Maclennan township. The main showing is on lot 8, concession 5; west shore of Massey Bay, Lake Wanapitei.

Ownership: 1954: Mr. Leclerc, lots 8-10, concession 5-6. 1955: Optioned by Picton Uranium Mines Ltd.

Development: Surface exploration; 3 short drill holes.

Geology: Radioactive pyritic quartz-pebble conglomerate, at base of Mississagi Formation, is exposed at four places along the west shore of Massey Bay. These lie with marked unconformity on the Pre-Huronian. To the north the conglomerate is partially cut out by diabase. Where undisturbed the beds dip 10-15° E.

Dimensions and Grade: Intermittent patches over a length of 600 feet, and a width of 15-40 feet. The following assays were obtained: DDH No. 1: 0.01-0.04% U_3O_8 (RE) over 15 feet.
DDH No. 2 and No. 3: gave similar values.
Company, surface grab sample: 0.06-0.08% U_3O_8 (RE).
ODM, surface grab sample: 0.01% U_3O_8 (RE).

References: ODM, G.R. 2, 1961, p. 29-30, with Map 2009.
Files: S63-257 (Leclerc).
S62-262 (Picton).

MARCONI TOWNSHIP

Can-Fer Mines Ltd.

Location: In Marconi township, 25 miles north of Sudbury.

Development: 1967: Staked, surface sampling.

Geology: Radioactive pegmatite dikes carry up to 0.8 lbs. U_3O_8/ton.

Reference: Northern Miner, Nov. 16, 1967.

MAY TOWNSHIP

Dominion Gulf Company

Location: NE¼, S½, lot 2, concession 6, May township.

Development: Surface exploration, 3 drill holes; 145.1, 146, 143 feet but none completed to basement (1954).

Geology: The property is underlain by sheared and deformed quartzite and greywacke correlated with the Mississagi Formation. Strikes N80°E and dips 80°N. The area is close to the Worthington (Murray) fault.

Dimensions and Grade: A 6-inch rusty-weathering band in quartzite was found to be radioactive and gave the following assays: 0.07, 0.06, 0.13% U_3O_8 (RE).

References: ODM, G.R. 1, 1960, p. 26-27 and Chart A.
Files: S63-275.

Alexander Occurrence

Location: NW corner of lot 9, concession 6, near Wilson Lake, May township.

Ownership: Examined in mid-1950's by Prosco Ltd. Optioned 1966-67 by Min-Ore Mines Ltd. Option dropped November 1967.

Development: Surface mapping, and drilling program.

Geology: Lower Mississagi arkose and radioactive conglomerate have been traced intermittently along strike for some 3 miles but only a ½ mile is known in detail. Conglomeratic quartzite occurs 15-30 feet in thickness. The Lower Mississagi Formation is exposed on the north side of the Murray Fault and about ¼ mile south of Archean granite. The intervening area is underlain by volcanic rocks of doubtful age and there is some evidence that the favourable horizon is within a volcanic-sedimentary sequence.

Dimensions and Grade: Surface assays from leached samples gave assays of up to 0.03% U_3O_8.

References: Northern Miner: Oct. 27, 1966 - June 29, 1967.
ODM Map: P. 105, Espanola Sheet.

PARKIN TOWNSHIP

Rhodes Exploration and Finance of Canada Ltd.

Location: NW corner of Parkin township, 30 miles from Sudbury.

Development: Geological mapping, drilling (1953-54).

Geology: An anticlinal structure plunges north. The core is occupied by andesite and the limbs by grey quartzite, slaty greywacke, and conglomeratic beds believed to belong to the Mississagi Formation.

Dimensions and Grade: A conglomerate bed has been traced intermittently for one mile, the actual outcrop totals 2,300 feet. At Round Lake a 25-foot bed of conglomerate has Ra of 2 x Bg.; at nose of fold beds of conglomerate give Ra of 1½ x Bg.; on the east limb 3 lenses of conglomerate separated by conglomeratic quartzite give Ra less than 2 x Bg. Drilling showed no improvement.

References: ODM Maps: P.367, P.400.
Files: S63-350.

PORTER TOWNSHIP

International Nickel Co. of Canada Ltd., The,

and adjacent ground

Location: Lot 1, concession 2, and lot 2, concession 1, Porter township; north of Agnew Lake.

Development: Surface exploration.

Geology: Mississagi quartzite and pyritic radioactive quartz-pebble conglomerate lie unconformably on a complex of lava, schist, and conglomerate.

Dimensions and Grade: Over a distance of 3,100 feet there are exposures of a conglomerate bed thinning from 7 feet to two beds totalling 1½ feet. The following assays were obtained by ODM (fluorimetric) 0.50% U_3O_8, 0.20% U_3O_8 on fresh material and 0.09% U_3O_8 on stained material.

References: ODM, G.R. 5, 1961, p. 33 with Map 2011.
Northern Miner: Sept. 22, 1966, Feb. 2, 1967.

Wilson Showing

Location: 10 miles northeast of Espanola on the north shore of Agnew Lake and comprising south half of lot 2, concession 1, and lot 1, concession 2, Porter township.

Ownership: 1954, Chemical Research Corporation (Canada) Ltd.

Development: Geological mapping, trenching (1954, 1966-67).

Geology: Mississagi Formation consisting of quartz-pebble conglomerate and quartzite lies on volcanic complex. The beds strike N55°E and dip 65-80°NW. The conglomerate is up to 12 feet thick and at one locality 2 beds total 18 feet but are separated by 6 feet of quartzite. The area is strongly deformed.

Dimensions and Grade: Trench No. 1: 0.29% U_3O_8 over 12 feet.
Trench No. 2: 0.25% U_3O_8 over 8 feet.
Trench No. 3: 0.08% U3O8 over 4 feet.
Other trenches: 0.01-0.06% U_3O_8.
Of 7 trenches reported 2 were in oligomictic conglomerate and 5 in polymictic conglomerate.

References: ODM, G.R. 1, 1960, p. 24-25.
ODM, G.R. 5, 1961, p. 34.
Files: S63-354 and 63A.200.
Northern Miner: Oct. 22, 1966 - Feb. 2, 1967.

SHAKESPEARE TOWNSHIP

Delcan Minerals Ltd.

Location: Shakespeare township, extending into Hallam township. Diamond drilling on lots 8 and 9, concession 1, Shakespeare township.

Development: 4 drillholes, 3 of which totalled 1,297 feet, were put down but none reached basement (1956-57).

Geology: Drill holes intersected quartzite and greywacke cut by a few thin diabase dikes.

Dimensions and Grade: In hole No. 4 at 205 feet a 1.5-foot quartzite bed contained 0.063% U_3O_8.

References: File: S63-412.

Dominion Gulf Company

Location: Zones A and B: lot 4, concession 5, Shakespeare township.
Zone C: N½ lot 5, concession 6, Shakespeare township.

Development: Trenching, geological and geophysical surveys, 3 drill holes (1953-54).

Geology: The Mississagi Formation, comprising quartzite, with local interbeds of quartz-pebble conglomerate near the base, outcrops along the shores of Agnew Lake. The sediments are intruded by diabase and are deformed and metamorphosed.

Dimensions and Grade: Zone A; up to 0.054% U_3O_8 and 0.09% ThO_2 over 8 inches; intermittent exposure over 150 feet.
Zone B; up to 0.056% U_3O_8 over 2 feet; intermittent exposure over 200 feet.
Zones C, D, E.; small patches 0.03% U_3O_8 and 0.05% ThO_2.

References: ODM, G.R. 1, 1960, p. 25 and Chart A.
Files: S63-411, 63.502; 63A.203.

Satellite Metal Mines Limited

Location: North end of Shakespeare township, 35 miles east of Elliot Lake.

Development: Scintillometer survey, drilling; also drilled by earlier owners (1966).

Geology: Area is underlain by quartzite believed to be Mississagi Formation. Radioactivity is associated with shear zones up to 30 feet in width.

Dimensions and Grade: A chip sample across one of these zones assayed 9 lbs. U_3O_8/ton/4 feet.

References: Northern Miner: Sept. 1, 1966, Oct. 6, 1966.

Shakespeare Uranium Mines Ltd.

Location: South side Agnew Lake, lots 1-3, concession 4, Shakespeare township.

Radioactive Minerals Present: Pitchblende.

Development: Surface exploration, radioactivity surveys, 23 drill holes (1954).

Geology: Basement rocks, consisting of volcanics and pyroclastics are overlain by a sedimentary group, greatly sheared and deformed consisting of quartz-pebble conglomerate, arkose, and greywacke. Radioactivity is restricted to pyritic oligomictic conglomerate. The main showing is on the north half of lot 2, concession 4.

Dimensions and Grade: Radioactive beds range from a few inches to several feet in thickness. The grade normally ranges from very low to 0.07% U_3O_8/3 feet; the best grades obtained were: 0.14% U_3O_8/1 foot and 0.13% U_3O_8/1 foot.

References: ODM, G.R. 1, 1960, p. 37-38 and Chart A.
Files: S63-482, 63A.518.

STETHAM TOWNSHIP

Jonsmith Mines Ltd.

Location: Headland on south shore of west arm of Kenetogami Lake, Stetham township about 50 miles west of Elk Lake.

Development: 1967, prospecting by N. Elieff of Gogama, prospector for Jonsmith Mines Ltd., staked, pitting and two grab samples.

Geology: Variable granitic rocks with partially assimilated inclusions of mafic volcanics cut by northwest and northeast-trending diabase dikes and late northwest-trending faults. Radioactivity is associated with a syenitic pegmatitic phase of the granitic rocks.

Dimensions and Grade: The pegmatitic phase is generally radioactive up to 3 x Bg., but at the pit on the weathered surface radioactivity of up to 5 x Bg. and on the fresh rock Ra of up to 20 x Bg. were obtained. Two grab samples assayed

0.28% and 0.35% U_3O_8 (RE) and little or no ThO_2.

Remarks: A number of other anomalies are known but have not been tested.

References: Northern Miner: Sept. 14, Nov. 16, 1967.

TURNER TOWNSHIP

T. Saville Occurrence

Location: ½ mile south of Bull Lake, 46 air miles NE of Sudbury.

Ownership: 1954: Discovered by T. Saville, staked by Normingo Mines Ltd., sold to Harrison-Hibbert Mines Ltd
1955: Name changed to Harrison Minerals Ltd. Property was allowed to lapse.

Development: Geological and radioactivity surveys, 9 drill holes totalling 1,579 feet (1954-55).

Geology: Basement rocks, greatly deformed lavas, pyroclastics and iron formation, granite and gneiss are unconformably overlain by undeformed Huronian sediments. Pyritic quartz-pebble conglomerate lies on the basement. This conglomerate is generally Ra 3-10 x Bg. and 8 showings were found.

Dimensions and Grade: The bed is up to 30 feet thick and is exposed intermittently over 2 miles. The best surface assay was 0.27% U_3O_8 over 7 feet. Drill core however ranged 0.03-0.06% U_3O_8. Minor amounts of ThO_2 and a "rather high content of zirconium" were noted.

References: ODM, G.R. 1, 1960, p. 28-29 and Charts A and D.
ODM Files: S63-498; S63-499.

TOWNSHIP 10D

K. Kram - J. Glowacki Occurrence

Location: Highway 129 in Township 10D, approximately 40 miles southeast of Chapleau.

Development: Stripping and trenching.

Geology: A band of highly folded Keewatin greywackes strikes northeast across the road. The greywackes are cut by quartz veins which carry pyrite, pyrrhotite, and sphalerite.

Dimensions and Grade: Seven samples gave assays ranging from nil to 0.09% U_3O_8 (RE) and an 8th gave 0.81% U_3O_8 (RE).

References: Lang et al, 1962, p. 283. ODM, P.R. 1950-6. ODM Map: 2108.

DISTRICT OF SUDBURY

Miscellaneous Occurrence

Name	Location	Reference
Allied Pitch Ore Mines Ltd.	Amyot and Browning twps.	Northern Miner, Oct. 6, 1966
Rowan Consolidated Mines Ltd.	South of Agnew Lake, Baldwin twp.	Northern Miner, May 25, July 20, 1967
United Cobalt Mines Ltd. (Turpeinen property)	South of Agnew Lake, Baldwin twp.	Northern Miner, May 25, 1967
J.R. Bridges occurrence	Howry creek, 12 miles southeast of Espanola	Files S.63-80
Armour Uranium and Copper Mines, Ltd.	Dua Lake, Frechette twp.	Files S.63-168, S.63-169
Del-Can Minerals, Ltd.	Lot 8, Con. VI, Hallam twp.	Lang et al, 1962, p. 263
Yellowknife Bear Mines, Ltd.	Hyman township	ODM, G.R. 34, 1965
E. Chevrette occurrence	Lot 6, Con. III and lot 5, Con. II, Maclennan township	ODM, G.R. 2, 1961 p. 30

Name	Location	Reference
Massey Bay, Lake Wanapitei	Lot 8, Con. III, Maclennan township	ODM, G.R. 2, 1961, p. 30
Rhodes Exploration and Finance of Can., Ltd.	NW corner of Parkin township	File S.63-350
Brewis and White occurrence	Lots 3-6, Cons. III-V, Porter township	ODM, G.R. 5, 1961, Files S.63-353, 63-495
Hunter Lake Area	Porter township	Files S.63-356, 63-358, S.63-353, 63-360
Pennbee Mining Corp.	Porter township	Northern Miner, Oct. 20, 1966
Assembly Mines, Ltd.	NE corner of Con. VI, Roberts township	Files S.63-373, 63-374, 63A-204

DISTRICT OF THUNDER BAY

Hele Township

J. Tessier - E. Williamson Occurrence

Location: Black Sturgeon River, in Hele township at lat. 49°00', long. 88°30'.

Development: Surface work only (1955).

Geology: Granite pegmatite dikes, 2-8 feet wide, carry uranium mineralization and yellow stains.

References: ODM, Industrial Mineral Report No. 21, 1967, p. 55.
ODM Files: Resident Geologist's office, Port Arthur.

LAURIE TOWNSHIP (?)

E. Nelson Occurrence

Location: 45 miles west of Port Arthur, rock cut on highway 17 listed by Lang as Laurie, Goldie, Blackwell, or Horne Township.

Radioactive Minerals Present: Uraninite.

Geology: Granite.

References: Lang 1952; 1962.

PIC TOWNSHIP

Pic Bamoos Prospecting Syndicate

Location: In Pic township, 2 miles west of Marathon.

Radioactive Minerals Present: Thorite.

Geology: Pegmatite.

References: Lang 1952; 1962, p. 268.

PORT ARTHUR

Location: In and near Port Arthur.

Geology: Veins of uraniferous anthraxolite were reported by Ellsworth in 1934.

References: Lang 1952; 1962, p. 276.
Ellsworth, H.V., 1934: Nickeliferous and uraniferous anthraxolite from Port Arthur, Ontario; Amer. Min., Vol. 19, No. 9, p. 426.

GERALDTON AREA

Sandy Stone Exploration and Development Co.

Location: Charon Lake and Kassagimini Lake, lat. 49°43', long. 85°50'.

Radioactive Minerals Present: Uraninite.

Development: A. Charon Lake Group: drilling totals 1081.5 feet.
B. Kassagimini Lake Group: drilling totals 1084 feet in 5 holes.

Years of Activity: 1955-1958.

Geology: Algoman pegmatite cuts Keewatin mica schist.

Dimensions and Grade: Group A, best assay - 0.02% U_3O_8.
Group B, best assay - 0.08% U_3O_8.

References: ODM, Industrial Mineral Report 21, 1967, p. 55.
ODM Files: Resident Geologist's office, Port Arthur.

GREENWICH LAKE AREA

Pan Canadian Development Ltd.

Location: Loon Lake (Greenwich Lake), lat. 48°47', long. 89°50'.

Ownership: 1954: T. Holt.
1957, 1958: Pan Canadian Development Ltd.

Radioactive Mineral Present: Pitchblende.

Development: 1954: Drilling.
1957-8: Drilling, trenching.

Geology: Granite and pegmatite cuts granitic biotite gneiss. The granite gneiss is cut by tension and shear fractures filled with quartz.

Reference: ODM Files: Resident Geologist's office, Port Arthur; 63A.358.

The Associates

Location: Ellen-Victoria properties, Loon Lake (Greenwich Lake Area), lat. 48° 47', long. 89° 50'.

Radioactive Minerals Present: Pitchblende.

Development: Trenching (1956).

Geology: Granite, granite gneiss, and paragneiss are cut by major faults. A quartz vein stockwork is associated with a NW-trending fault. Ferruginous alteration and silicification are also present.

Dimensions and Grade: Fractures are mineralized by ¼-inch stringers with pitchblende. Selected samples assayed up to 27% U_3O_8.

References: ODM Files: Residen[illegible]ologist's office, Port Arthur.

STURGEON LAKE AREA

New Santiago Mines Ltd.

Location: Sturgeon Lake, 60 miles southeast of Sioux Lookout.

Ownership: D. Clarke of Port Arthur optioned the property to New Santiago Mines Ltd. in 1955.

Geology: The Sturgeon Lake alkalic syenite cuts Archean volcanic rocks. Radioactivity is associated with the contact zone, with alteration zones, and with late pegmatites. Niobium is also present.

Dimensions and Grade: In contact zone, radioactivity of 2-5 x Bg. was recorded in zones up to 25 feet wide. Assays of up to 0.009% U_3O_8 were obtained. Alteration Zones: Sturgeon Narrows, at northeast shore of largest island 2-3 feet of altered rock contained 0.01% Nb and 0.01% U_3O_8 (RE).
Seaton Island: Altered zones contain 0.04% U_3O_8 (RE).
Shore to NE of Seaton Island: 0.002% U_3O_8.
Anderson Island: 0.006% U_3O_8.
Coveney Island: Feldspar-fluorite-carbonate veinlets with pyrite, hematite, and a black Ra mineral; 0.05% Nb, 0.06% U_3O_8 (RE) and traces of Th, Ce, La.
Pegmatite: Unnamed lake north of Princess Lake:
Pegmatite dikes are Ra up to 6 x Bg.
Coveney Island (may be same as above?) four dikes recorded. Dike A is 260 feet wide and traced for 47 claims and assayed 0.15% U_3O_8; 0.015-0.020% Nb_2O_5 and on south shore of island 0.048% ThO_2 and trace Sn.

Reference: ODM, G.R. 24, 1964, p. 42, 46, and Map 2044 (west half).
ODM Files: Resident Geologist's office, Kenora.

DISTRICT OF THUNDER BAY

Miscellaneous Occurrences

Name	Location	Reference
A. Brisbois occurrence	1 mile east of Long Lac, Daley twp.	Lang et al, 1962, p. 257
Floranda Mines, Ltd.	Daley township	Files, Resident Geologist, Port Arthur
D. Smith occurrence	Heron Bay, Pic township	Lang et al, 1962, p. 264
A. Punkari occurrence	C.P.R., east of Reagan Sta. Twp. 70	Lang et al, 1962 p. 283
Lake Superior Mining Corp.	Hemlo, Twps. 73-74	Lang et al, 1962, p. 263
Port Munroe Prospecting Synd.	Angler siding, Twp. 77	Lang et al, 1962, p. 268
P.M. Bartz occurrence	Charon Lake, 6 miles NE of Caramat	Lang et al, 1962 p. 256

DISTRICT OF TIMISKAMING

CANE TOWNSHIP

Windy Hill Mining Corporation Ltd.

(Cane silver mine)

Location: Lots 1-4, concession 1 and 2, Cane township, extending into adjacent parts of Auld township.

Ownership: 1917: Cane Silver Mines Ltd. (lot 2, concession 2).
1922: Ontario Solid Silver Mines Ltd.
1949: Ontigan Explorations Ltd. had a lease-option on Ontario Solid Silver Mines ground. Radioactivity was noted and in 1951 Caneonti Mines Ltd. was formed and acquired 21 claims including Ontario Solid Silver Mines Ltd. and a lease-option agreement was made with Cane Silver Mines Ltd.
1963: Solid Silver Mines Ltd. had an 18-month option on the property.

Radioactive Mineral Present: Pitchblende.

Development: Surface and underground workings on both Cane Silver Mines Ltd. and Ontario Solid Silver Mines Ltd. Both properties were producers of silver. Surface exploration and drilling by Caneonti Mines Ltd. explored 73 veins, 5 of which carried pitchblende.

Geology: Silver-bearing veins occur on the east side of a narrow ridge of diabase cutting quartzite.
Mineralization consists of silver and argentite in calcite in fractures near the upper contact of the diabase.

Dimensions and Grade: Selected grab samples from pitchblende occurrences assayed as high as 34.98% U_3O_8.

References: ODM Map: P. 159.
ODM Files: Resident Geologist's office, Kirkland Lake.

HUDSON TOWNSHIP

W. Spencer Occurrence

Location: Lot 12, concession 6, Hudson township.

Development: Trenching, drilling.

Geology: Uranium mineralization occurs in brecciated Firstbrook argillite underlying a Nipissing diabase sill. The breccia bands are up to one foot wide and have sharp cross-cutting contacts with the country rock.

Dimensions and Grade: Bands of breccia are within a zone 250

feet long. Assays have been obtained as follows:
ODM (17): 0-0.18% U_3O_8 (RE).
GSC (23): 0.01-0.21% U_3O_8 (RE).

References: Lang et al, 1962, p. 264.
ODM, M.P. 5, 1966.
ODM, Map: P.159.

LEBEL TOWNSHIP

Max Kaplan Property

Location: In Lebel township, 5½ miles east of Kirkland Lake.

Ownership: Gold prospect formerly held by Crystal Kirkland Mines Ltd., (charter cancelled 1964) and now held by the Max Kaplan Estate.

Development: Surface exploration of gold prospect.

Geology: The property is underlain by Timiskaming sedimentary rocks intruded by Algoman syenite. One Ra zone of sericite schist about 8 feet wide has been traced for at least 1600 feet and in the west part of the property splits into two zones.

Dimensions and Grade: The best assay obtained is 2 lbs. U_3O_8 over 5-7 feet.

References: ODM Files: Resident Geologist's office, Kirkland Lake.

LEBEL TOWNSHIP, GENERAL

Location: 4½ miles east of Kirkland Lake.

Geology: Radioactivity has been reported associated with a Timiskaming amygdaloidal trachyte cut by Algoman syenite.

Dimensions and Grade: Over 70-foot outcrop Ra is 3-4 x Bg. Representative samples assayed 0.032-0.05% U_3O_8.

References: ODM Files: Resident Geologist's office, Kirkland Lake.

DISTRICT OF TIMISKAMING

Miscellaneous Occurrences

Name	Location	References
Empire Gold Mines, Ltd.	Boston twp.	Files, Resident Geologist, Kirkland Lake
N. Evoy occurrence	Boston twp.	Files, Resident Geologist, Kirkland Lake
M. Lunge occurrence	Claim L.57591, Boston twp.	Files, Resident Geologist, Kirkland Lake
Yart occurrence	Claim L.59397, Boston twp.	Files, Resident Geologist, Kirkland Lake

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